TECHNOLOGY DEPARTMENT

Construction Methods

March 1928

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Equipment Kinks for Highway Maintenance

Horse Mesa Dam

"The Contractor Goes Shopping"

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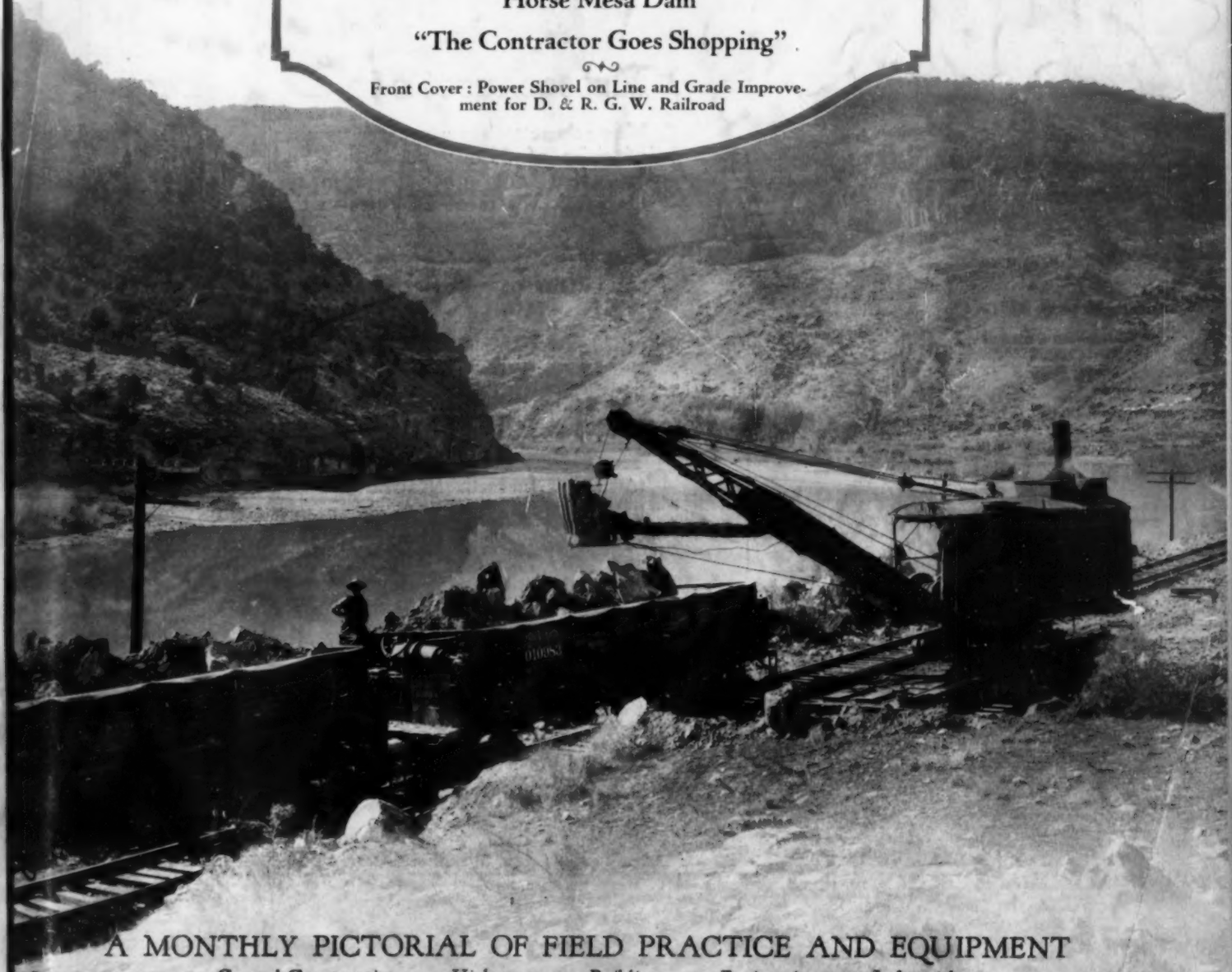
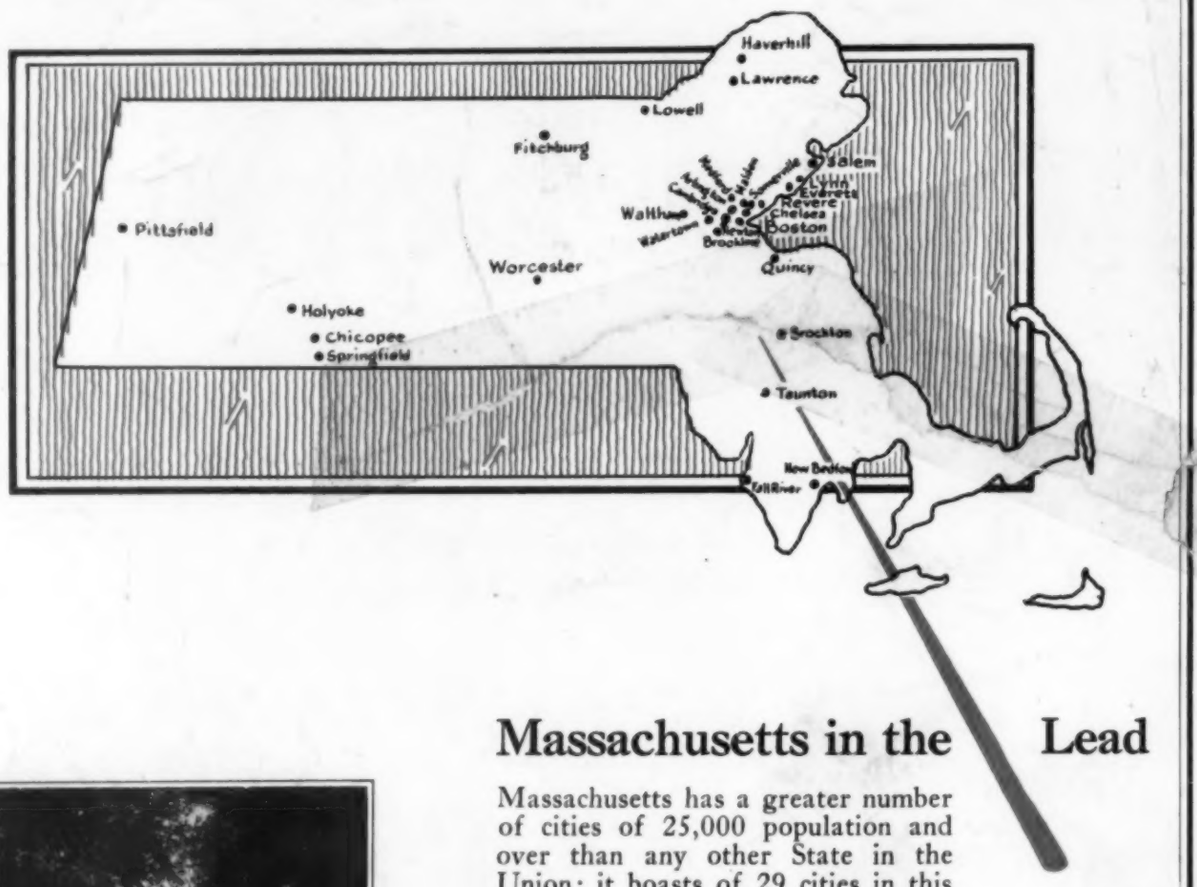


A MONTHLY PICTORIAL OF FIELD PRACTICE AND EQUIPMENT

General Construction · Highways · Buildings · Engineering · Industrial



Massachusetts in the Lead

Massachusetts has a greater number of cities of 25,000 population and over than any other State in the Union; it boasts of 29 cities in this class.

Of added interest, particularly to anyone in the roads and streets field, is this—

20 of these 29 chief cities of Massachusetts have streets which have been paved with resilient, waterproof and durable Texaco Asphalt.

There are more than 100 cities and towns in Massachusetts with Texaco-paved streets.

The popularity of Texaco Asphalt paving in Massachusetts is typical of an approval which is nation-wide.

Watertown, Mass.—view of TEXACO Asphalt pavement laid in 1921.

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ASPHALT SALES DEPT.
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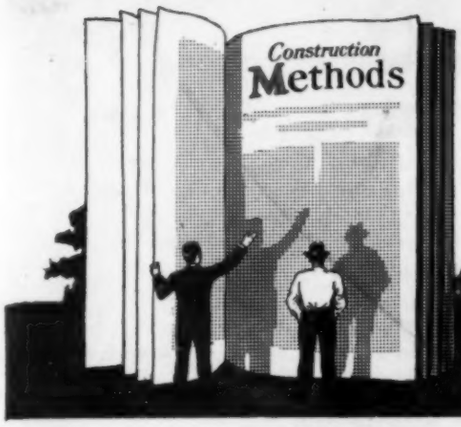
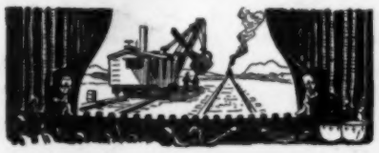
TECHNOLOGY DEPT.



What's Doing This Month

Looking it over with the Editor

THIS MONTH ushers in Railway Week, when members of the American Railway Engineering Association assemble in Chicago, March 6-8, for their annual convention and exhibit of equipment and materials. In this issue we feature an outstanding program of railway reconstruction: improvement of line and grade on the Denver & Rio Grande Western in Colorado. A picture story of this work, involving the use of all kinds of heavy equipment for moving earth and rock appears on p. 6 under the head "How They Took the Kinks Out of

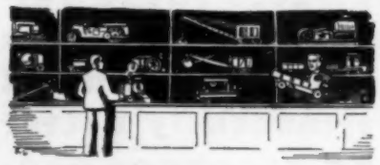


the Royal Gorge Route." Platt Rogers, Jr., contractor for part of the work, made a greater use of draglines and motor trucks than is common in similar work in the West.

IT'S DIFFERENT now in construction than it was in the old pick-and-shovel days. When a contractor digs down to the tune of twelve or fifteen thousand dollars for a crawler crane, he sees in the operator of that machine a good deal more than a number on a brass time check. The field man's standing as an individual is largely a matter of his capacity to produce, and that goes pretty much hand-in-hand with the amount of equipment on the job.

MORE THAN 3,000,000 WORKMEN will receive employment this year in the construction industry, according to opinions expressed by leading building contractors assembled at the recent annual convention in West Baden, Ind., of the Associated General Contractors of America. It was estimated, also, that construction materials having an approximate total value of $4,000,000,000 will be used this year. This forecast of healthy conditions is based upon the belief among constructors that this year's program will rival in size the record-breaking activities of 1927.

EQUIPMENT DISTRIBUTORS have earned for themselves a place among the groups of major influence in the construction industry. They are the points of contact between the makers and the users of construction machinery. Service, as well as sales, is today an essential of their creed. Every man who buys equipment will be interested in the picture story on p. 16 of a representative distributor's organization and plant. It appears under the head, "The Contractor Goes Shopping."



PRESIDENT C. M. BABCOCK, speaking before the Cleveland Convention of the American Road Builders' Association:

"This development of roads and building methods would not have been possible without modern road machinery."

His statement was prompted by comparative figures on the present status of highway development and what it was 25 years ago. In 1903 there were 2,000,000 miles of highway in the United States, of which 150,000 miles were surfaced. In 1928 there are a

total of 3,000,000 miles of which 600,000 miles are surfaced. Hand-labor methods could never have accomplished this task. Improved equipment, as Mr. Babcock points out, did the job.

ANNOUNCING—

New conditions for our Monthly Photographic Contest. To win one of the three prizes of $25, $15 and $10, it is no longer necessary for a competitor actually to take the picture himself. Pictures are now eligible for the contest if they are *submitted* by a man regularly employed on the job. (For details, see p. 21.)

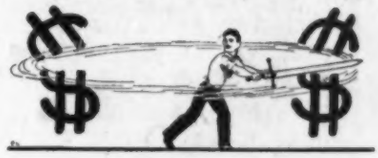
This change opens up the Photographic Contest to men who have access to a lot of interesting, novel and useful photos in their files, but who have not submitted them because the pictures were taken by some one else. The new conditions make it easier for you to win one of the prizes.

SEND IN PICTURES ON *YOUR* JOB

THE PROBLEM: To set a roof truss 103 ft. above ground with a crane boom only 60 ft. long.

THE SOLUTION: An ingenious "pendulum" rig, illustrated on p. 36. Haven't *you* done some job stunt of this sort which should be illustrated in *Construction Methods?* Send the Editor your photos of interesting rigs that did the trick in a pinch.

FOR CUTTING COSTS industry has provided the contractor with a two-edged sword. One edge is modern equipment and the other, equally keen, is improved materials. A case in point with regard to materials is illustrated by a picture story showing



how a contractor in Atlantic City, N. J., on a six-story apartment job built "Floors Without Forms." See how it was done on p. 11.

OVER HIS EXHIBIT at the Road Show in Cleveland last January one manufacturer had a placard reading: "Price doesn't mean a thing. It's earning power that counts." This isn't news to the older contractors who have been through the mill in purchasing and using equipment, but it's something the younger man should paste in his hat.

NEXT MONTH: A Big Cofferdam Job on the Ohio River; How to Handle Tractors—a picture story for the operating man; Substructure for Arlington Memorial Bridge — A "Step - by - Step" picture story; "Concrete à la Cart"; Digging Dixie Highway Through Mountains of Tennessee.

Junior High School, 18th and Chelton Streets, Philadelphia

Northwestern University Stadium, Evanston, Ill.

Post Office Floor, Waukesha, Wis.

Michigan Street Concrete Pavement, Duluth

Bridge Approach, National Highway, Bridgeport, Ohio

Highway Repairs, Route No. 4, Lemont, Illinois

Grand Stand, Hibbing, Minn.

Concrete Street Intersection, Maywood, Illinois

Concrete Highway Pavement, Logan West Virginia

Post Office Foundation, River Forest, Ill.

Concrete Reservoir, Boonville, Ind.

Stemland Garage Floor, Minneapolis

Dock Wall, Buffington Harbor, Ind.

Pavement, South Franklin Street, Decatur, Ill.

Floor, Otis Steel Co., Cleveland

Concrete Driveway, Hospital, LeMars, Ia.

Engine Foundation, Menasha, Wis.

Concrete Bridge Piers, Streator, Ill.

Concrete Highway Intersections, La Grange, Ill.

Congress Street Bridge, Grant Park, Chicago

Courthouse Foundation, Sullivan, Ind.

Trench Caps, Decatur, Ill.

Repairs, Minnesota State Highway System

Packing House Floor, Lafayette, Ind.

Concrete Street Intersection, LeMars, Ia.

City Concrete Pavement, Barrington, Illinois

Bridge Approach, Eau Claire, Wis.

Street Intersection, Champaign, Ill.

Filtering Plant, Batesville, Ind.

Bridge, Inwood, Ia.

Foundation Piers, Armitage and Milwaukee Aves., Chicago

Pavement Repairs and Maintenance, Parkersburg, W. Va.

Engine Foundation, Braddock, Pa.

Street Pavements, Rockford, Ill.

Sidewalk, Flossmoor, Ill.

Alley, Collins Street, Joliet, Ill.

Lumber Yard Driveway, Elwood, Ind.

Manholes and Conduits, Commonwealth Edison Co., Chicago

Building Foundation, M. Graus Estate, Hastings, Minn.

Paving between Car Tracks, Seventh Street, Pittsburgh

Street Repairs, Rush and Kinzie Streets, Chicago

Underpinning Office Building, 324 So. Market Street, Chicago

Warehouse Floor Topping, McGill Lith. Co., Minneapolis

Loading Platform, Lehon Co., Chicago

Concrete Pavements, Buffington, Ind.

Filling Station Driveway, Duquoin, Ill.

State Highway Repairs, Rushmore, Minn.

Road from Stock House, Universal, Pa.

On all these jobs the builders saved valuable construction time and secured permanently better and stronger concrete thru the use of High-Early-Strength Universal Concrete. • • • For information on this concrete [as strong at 3 days as ordinary concrete at 28 days and much better and stronger forever after] send in the accompanying coupon.

Repairs to Brick Pavement, DuQuoin, Ill.

Commercial Garage Lintels, Hutchinson, Minnesota

Scale Approach, J. J. Wallace Coal Co., Chicago

Tower Foundation, Nat. Analine & Chem. Co., Buffalo

Floors, Brewer Radiator & Repair Co., Morgantown, W. Va.

Paving Base, Union Station, Columbus, Ohio

Concrete Driveway, B. F. Hoffman Coal & Supply Co., Harrisburg, Pa.

Warehouse Foundation, Shelbyville, Ind.

Filling Station Driveway, Effingham, Ill.

Driveway Under Bins, Monongahela, Pa.

Driveways, Filling Station, Pontiac, Mich.

Foundations, Wacker Drive, Chicago

Pennsylvania R. R. Viaduct, Kokomo, Indiana

State Highway Repairs, Beroun, Minn.

Underpinning in connection with Midland Club, Chicago

Foundation, Oil Refinery, Robinson, Ill.

Laundry Tubs, Chicago Granatine Co.

Concrete Street Intersections, Downers Grove, Ill.

Driveway, Filling Station, Middletown, Ohio

Bridge, Duncan Creek, Chippewa Falls, Wisconsin

Garage Floor and Foundation, Centralia, Illinois

Concrete Floor, Car Barn, Wausau, Wisconsin

Addition, Swift & Co. Building, Williamson, W. Va.

Concrete Garage Floor, H. G. Campian, Philadelphia

Bridge Approach, Main Street, New Richmond, Wis.

Concrete Street Paving, Waukegan, Illinois

Condenser Pan, Minot, N. D.

Elevator Pit, Chicago Cardboard Co.

Store Entrance, Clinton, Ia.

High School Stairs, Eveleth, Minn.

Pavement Repairs and Maintenance, Ravenswood, W. Va.

Street Pavements, Superior, Wis.

Road Repairs, Buffington, Ind.

Arch Work, Batavia, Ia.

Pavement Repairs, Hobart, Ind.

Highway Repairs, Elk River, Minn.

Alley Repairs, Harvey, Ill.

Street Repairs, La Porte, Ind.

Bridge Approaches, Gilman, Ill.

Concrete Street Pavement, B. & O. R. R., Cleveland

Paving between Car Tracks, West Chicago, Ill.

Pavement, Ingram Street, Pittsburgh

Filling Station Driveway, Silvis, Ill.

Street Repairs, Vandalia, Ill.

Bridge, Newcomerstown, Ohio

Street Intersections, Lewiston, Pa.

Floors, Westinghouse Electric Co., East Pittsburgh

Quarry Street Pavements, Wheeling, West Virginia

Concrete Intersection at Gary and 105th Streets, Duluth

Bridge Floor, West Austintown, Ohio

Driveway, Decatur (Ill.) Builders' Supply Company

Street Pavement, Michigan City, Ind.

Intersection, Zane and Madison Streets, Martin's Ferry, Ohio

Driveway, Filling Station, East Moline, Illinois

Pavement, Reedsdale Street, Pittsburgh

Ward Hotel, Aberdeen, S. D.

Northern Pacific R. R. Bridge, Superior, Wisconsin

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208 South La Salle Street, Chicago.

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City .....

State .....

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Construction Methods

McGraw-Hill Publishing Company, Inc.
JAMES H. MCGRAW, *President*
E. J. MEHREN, *Vice-President*

A monthly pictorial of field practice and equipment illustrating successful construction, maintenance and material-handling methods for general construction, highways, buildings, industrial plants and public works and utilities

WILLARD CHEVALIER, *General Manager*
ROBERT K. TOMLIN, *Acting Editor*

VOLUME 10 — NEW YORK, MARCH, 1928 — NUMBER 3

ALL ALONE IN THE WOODS, this little 1-yd. dragline builds embankment for logging railroad.

Lone Dragline SHOVEL *Grades a Railroad*

HIGH up in the foothills of the Cascade mountains in central Oregon, through a forest of virgin pine timber and almost a mile above sea level, a little 1-yd. Northwest dragline-shovel recently graded a railroad all by itself.

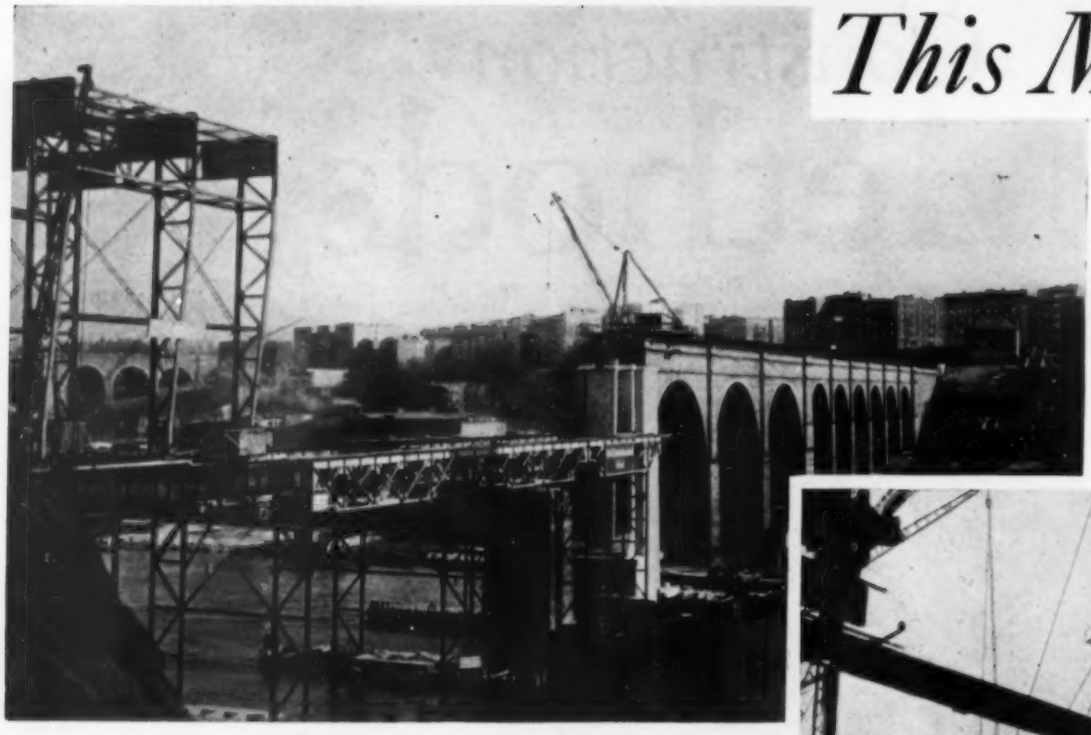
Some 50 miles of standard-gage railroad is operated by the Brooks-Scanlon Lumber Company of Bend, Ore., for hauling logs to its two big mills. Formerly the grading was done by teams, but in order to build a short extension the United Contracting Company of Portland imported a combination Northwest dragline-shovel, which was an unqualified success. Mounted on crawler treads, it was able to go anywhere in the woods, pulled stumps and trees with ease, built up the grade quickly, and even did most of the finishing. Only two men were necessary, one to operate the machine, which had a six-cylinder gas engine, and the other to put the final touches on the finishing.

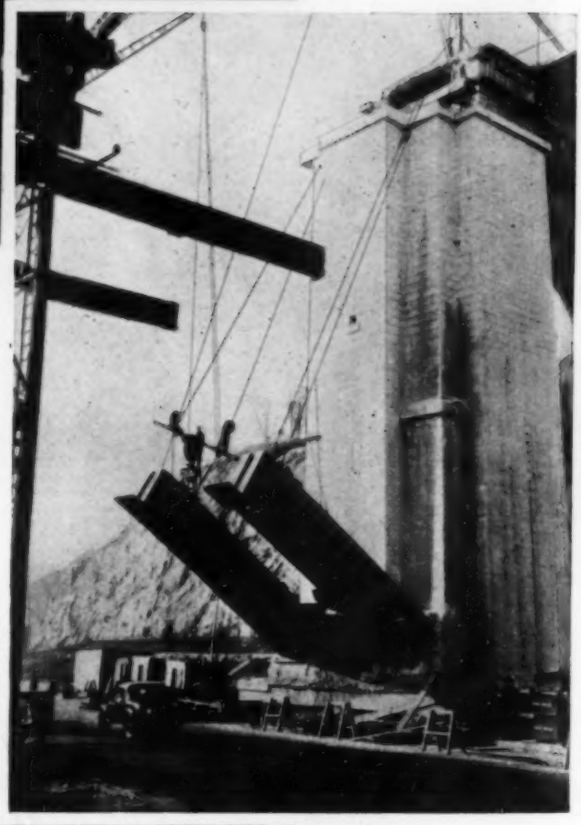
Equipped with both dragline bucket and the regular shovel boom, the machine was convertible in a short time for either clearing its own path through the woods or building up the grade. Mr. S. A. Blakely, logging superintendent for the lumber company, was loud in praise of the little machine when its work was done.

AND NOW IT'S A SHOVEL, changed by convertible boom, making a cut on right-of-way.

A DRAGLINE AGAIN, it puts the finishing touches on the grading. Those crawler treads come in handy.

This Month's

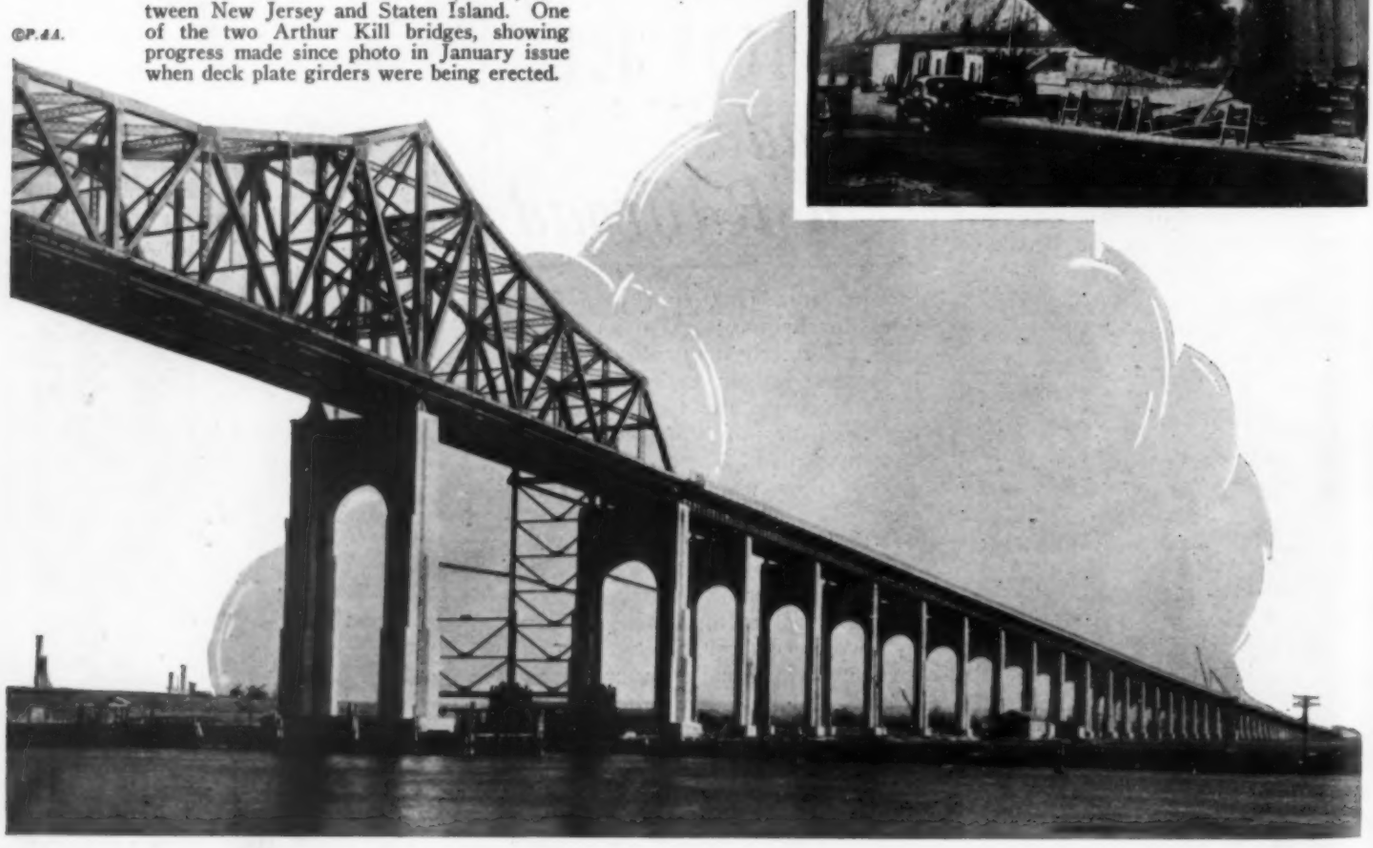




FIRST STEEL MEMBERS (*right*) being placed on reconstruction of High Bridge over Harlem River, New York. Removal of old masonry piers which obstructed river traffic (*above*) paves way for construction of new steel arch by McClintic-Marshall Company for the Department of Plant and Structures, New York City.

A NEW TRAFFIC LINK (*below*) between New Jersey and Staten Island. One of the two Arthur Kill bridges, showing progress made since photo in January issue when deck plate girders were being erected.

©P.&A.

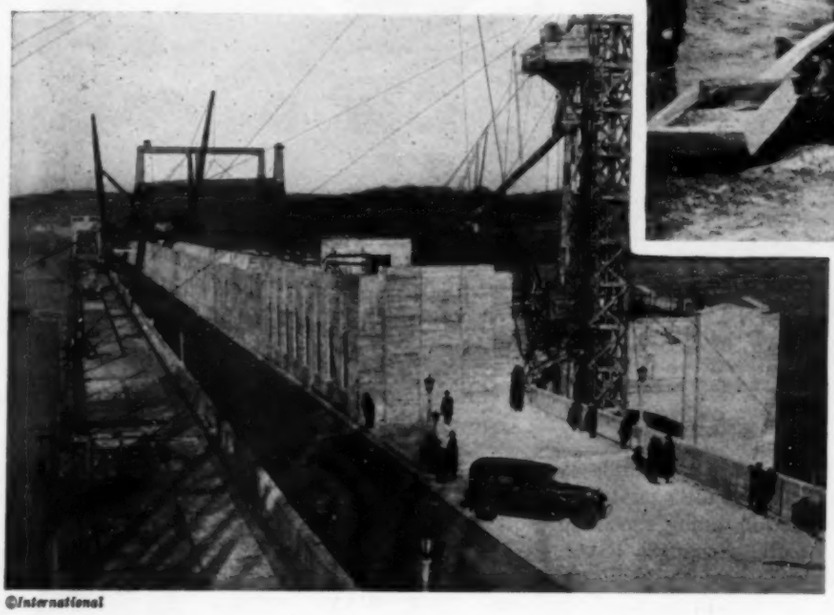


"News Reel"

DAM CARRIES HIGHWAY (*below*) over Susquehanna River. Conowingo power development in Maryland is a $53,000,000 project constructed by Stone & Webster, Inc., and the Arundel Corp., for the Susquehanna Power Company.

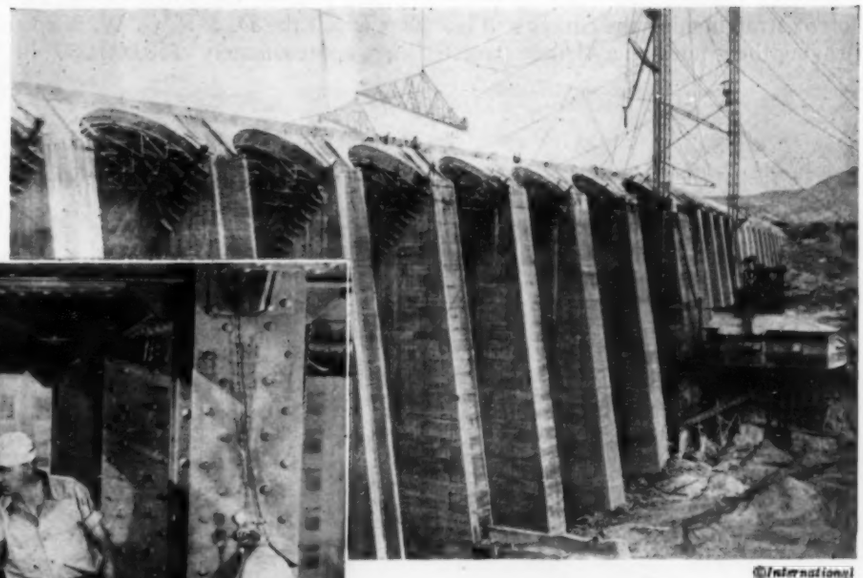
©U. & U.

HYDRAULIC SLUICING (*above*) is the method that California constructors are using to grade the new $600,000 airport for San Diego.



©International

FOR IRRIGATION AND POWER (*right*). Lake Pleasant dam in Arizona, is multiple-arch structure 2,146 ft. long to store water for 40,000-acre project. Carl Pleasant, contractor, and his superintendent, J. G. Tripp, handled this job with a force of 600 men.



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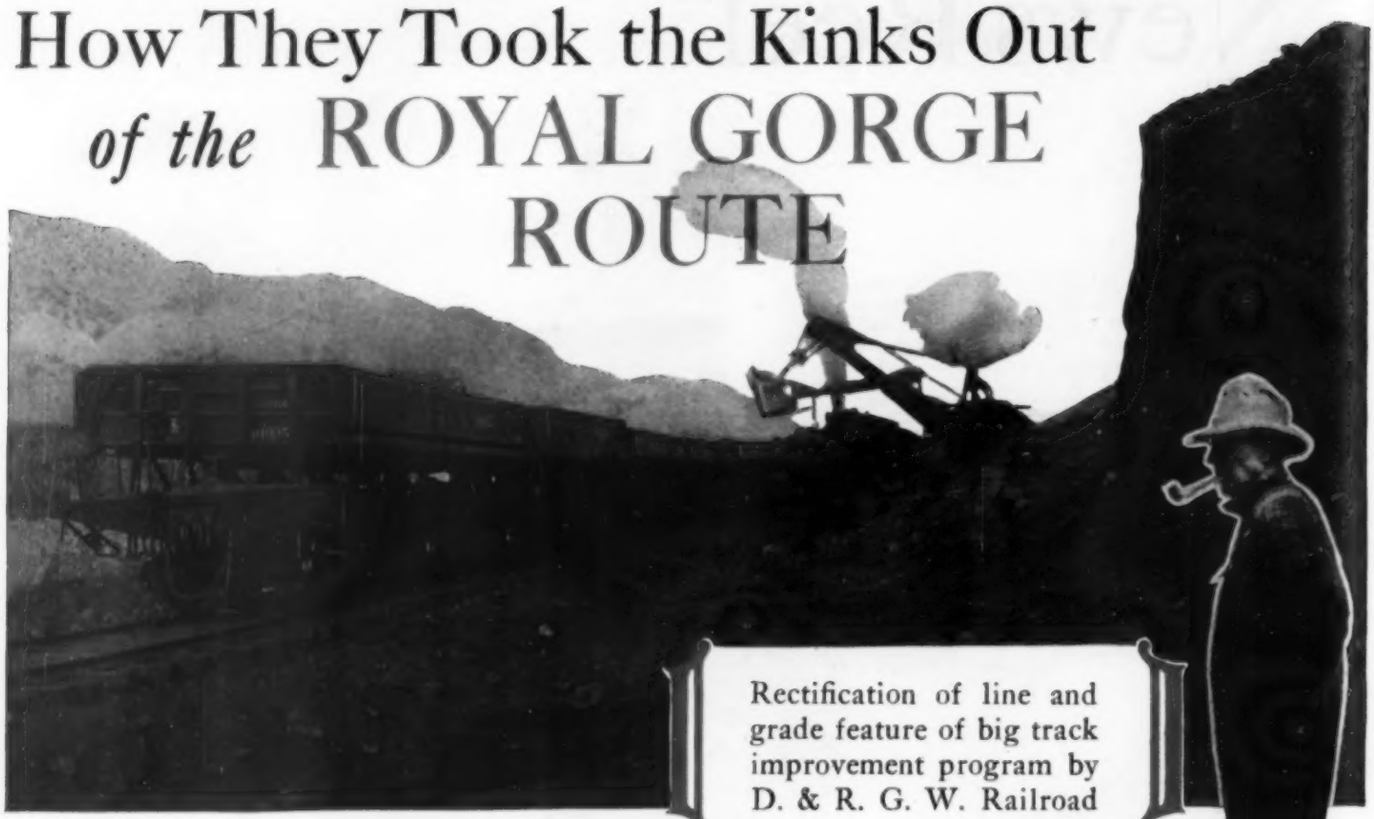
STEEL ERECTORS IN MOVIES (*left*) Construction men will have a direct interest in "Skyscraper," the new DeMille Studio production for Pathé, featuring William Boyd ("Blondy") and his pal "Slim," a couple of hard-boiled riveters on a big steel building job.

How They Took the Kinks Out *of the* ROYAL GORGE ROUTE



Rectification of line and grade feature of big track improvement program by D. & R. G. W. Railroad

"THE equipment used for this work has included almost every kind of excavating and hauling machinery."

That's what Platt Rogers, Jr., president of Platt Rogers, Inc., general contractor of Pueblo, Colo., says about the job of straightening the curves and improving the grades on a 41-mile stretch of the Denver & Rio Grande Western R.R. between Salida and Parkdale, Colo., extending along the picturesque canyon of the Arkansas River. The construction is part of an extensive program of rehabilitation and track improvement for the Royal Gorge Route on which the D. & R. G. W. is spending approximately $50,000,000 in a

C.H. WEHMEYER, superintendent, Camp No. 2.

AT THE PARTING OF THE WAYS (*below*) where new line eliminates curve in old route at approach to Colorado River Canyon.

period extending over seven years.

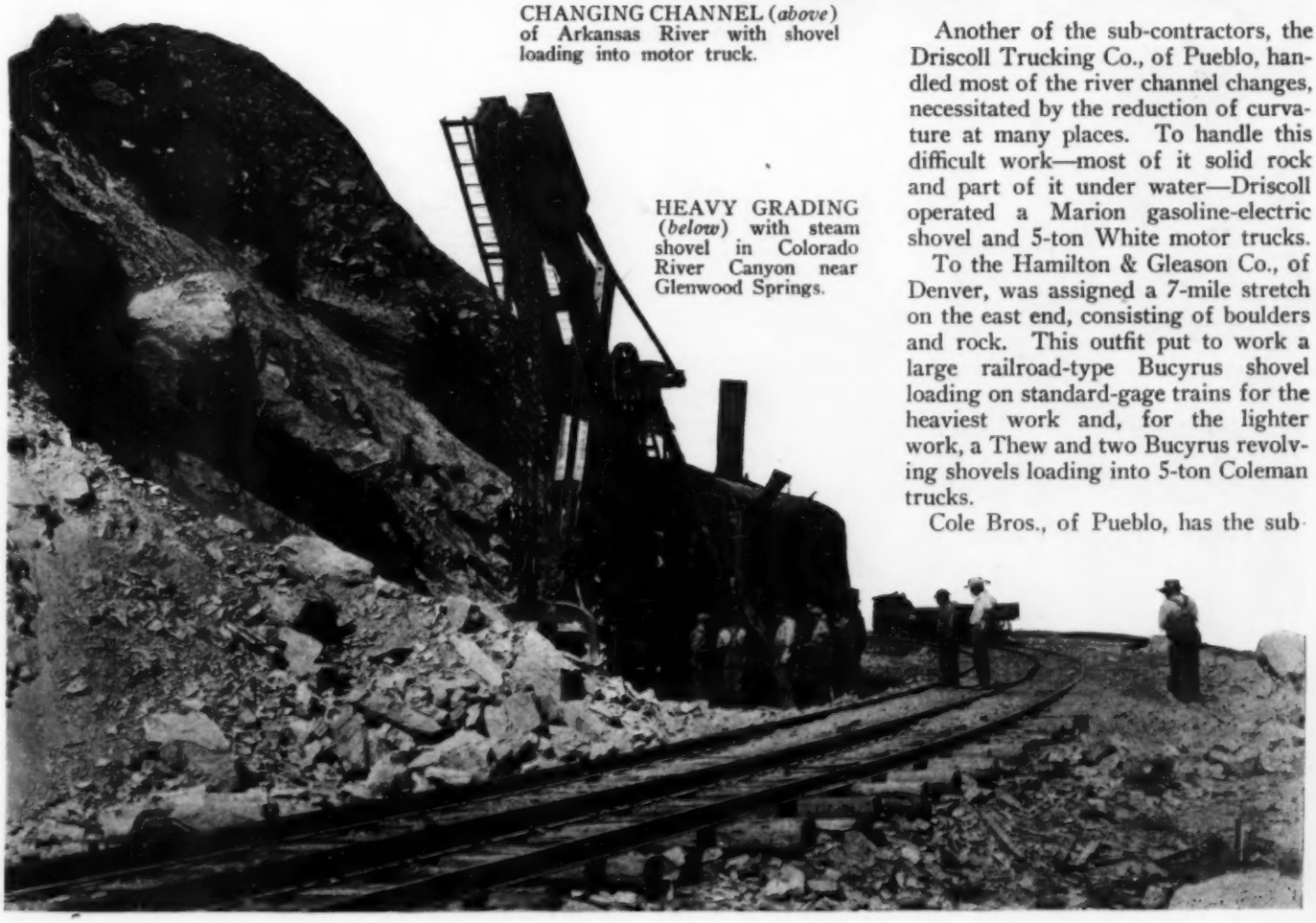
The line on which the Rogers organization is at work was originally narrow-gage, with so many sharp curves that the demands of present-day train schedules could not be met. The improvement work, therefore, was undertaken to remove the kinks from line and grade and produce better and more economical operating conditions for both passenger and freight service. In addition, the railway engineers considered it advisable to shift the line in some places to avoid the possibility of damage by rock slides.

The Rogers crew, when it began work last April, faced a man-sized job, for its contract called for about 900,000 cu.yd. of excavation, of which 30 per cent was solid rock. To handle the work the company established four construction camps along the line and arranged to have portions of the job done under sub-contract.

The Sub-Contractors

Ed. H. Honnen, of Colorado Springs, with a sub-contract for 15 miles, undertook the moving of 200,000 cu.yd. of excavation with a 1¼-yd. Osgood shovel, a ¾-yd. Erie shovel, and a fleet of 5-ton and 2-ton motor trucks, as practically none of the work along the line was suitable for team haulage.

CHANGING CHANNEL (*above*) of Arkansas River with shovel loading into motor truck.



HEAVY GRADING (*below*) with steam shovel in Colorado River Canyon near Glenwood Springs.

Another of the sub-contractors, the Driscoll Trucking Co., of Pueblo, handled most of the river channel changes, necessitated by the reduction of curvature at many places. To handle this difficult work—most of it solid rock and part of it under water—Driscoll operated a Marion gasoline-electric shovel and 5-ton White motor trucks.

To the Hamilton & Gleason Co., of Denver, was assigned a 7-mile stretch on the east end, consisting of boulders and rock. This outfit put to work a large railroad-type Bucyrus shovel loading on standard-gage trains for the heaviest work and, for the lighter work, a Thew and two Bucyrus revolving shovels loading into 5-ton Coleman trucks.

Cole Bros., of Pueblo, has the sub-

CARS UPON CARS! (*above*) Contractor's side-dumps on D. & R. G. W. flats.

TALKING IT OVER (*below*). Tom Bryson, shovel operator, and Thomas Marshall, general superintendent.

LINE CHANGE (*below*) in Colorado River Canyon involved some hard rock work with big shovel.

contract for the section of line involving most drastic changes. Their work extended over 2 miles and involved 150,000 cu.yd. of material, mostly heavy gravel. Their equipment inventory included a 2½-yd. Monighan dragline, a 1½-yd. P. & H. dragline, 5-ton motor trucks, and 5 and 7-yd. wagons hauled by Caterpillar tractors. Of this section of the work Mr. Rogers says:

"The use of draglines on this class

"IRON MULES" receiving spoil from dragline excavator on Rogers contract.

MOTOR TRUCKS were used in handling excavation from borrow pits.

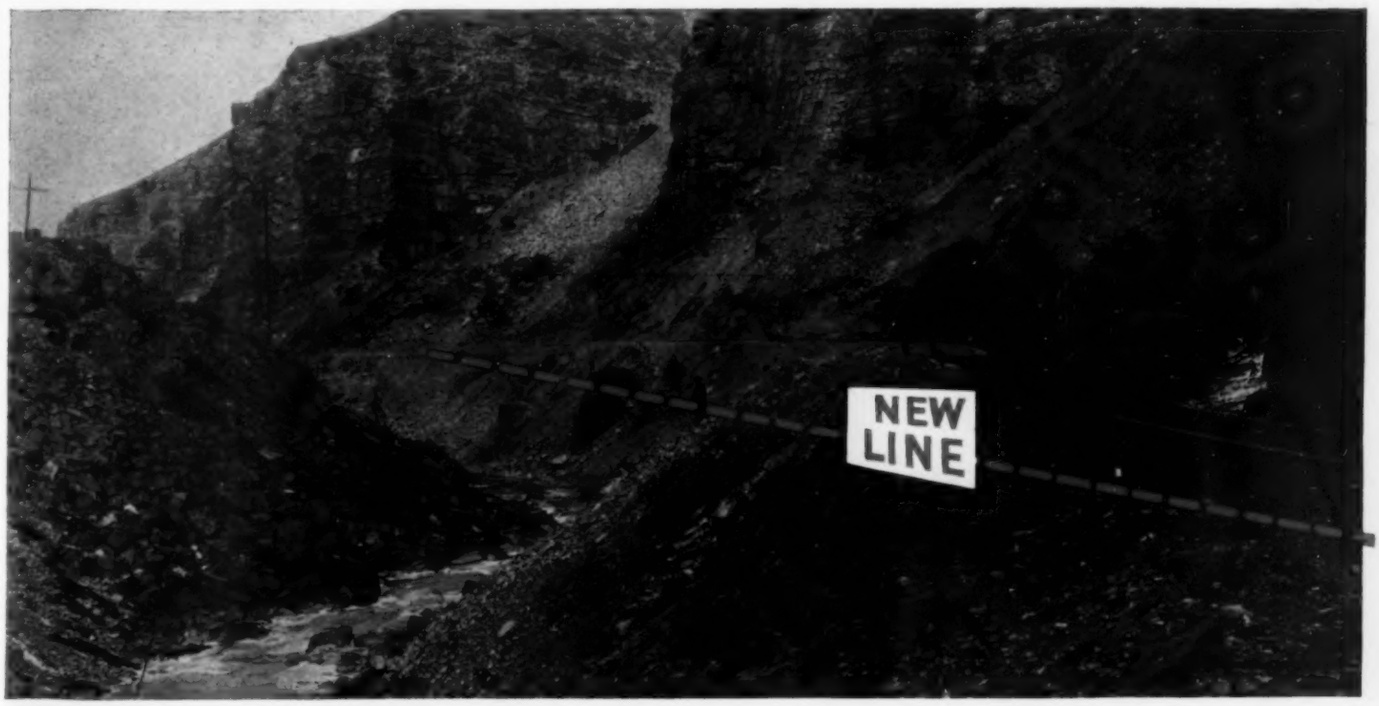
OLD AND NEW GRADES on track improvement near Yale, Colo.

CAMP 2 of Rogers construction crew.

of work is an innovation in this part of the country, but the machines have worked very satisfactorily and their performance will, no doubt, lead to a more extensive use of draglines on other work."

From its four construction camps, the Rogers company operates four Marion steam shovels, one Link-Belt dragline, one Marion gasoline shovel, and one Bucyrus shovel. The larger

ELIMINATING CURVE in Eagle River Canyon.



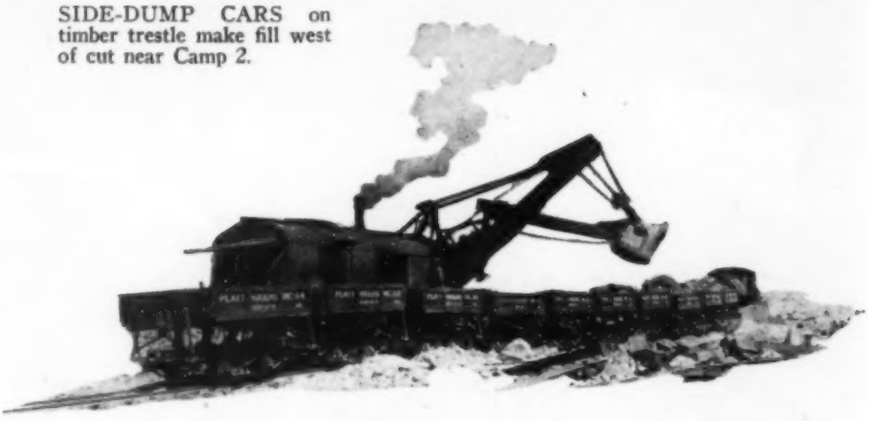
shovels load into 4-yd. Western cars, while the smaller units work with motor trucks. The motor truck fleet includes 1½-ton Internationals, 5-ton Whites, and a fleet of Hughes-Keenan "iron mules."

In addition to the foregoing, the railway company itself is operating a large Bucyrus shovel and a Marion ditcher.

In addition to the track work proper, there is a considerable amount of concrete culvert and small bridge construction which is being handled by Lee F. Williams, of Pueblo, to whom the Rogers company furnishes precast concrete deck slabs.

The principal difficulty of the work, according to Mr. Rogers, has been its proximity to the main line of the railroad over which traffic has been unusually heavy. "We are very proud," he says, "of having finished our work under hazardous conditions at about fifteen points. There has been no accident, no derailment, and an almost negligible delay of trains. The outstanding features of the construction itself lie in the use of trucks for transportation and draglines for excavating on this class of work."

SIDE-DUMP CARS on timber trestle make fill west of cut near Camp 2.



CUT IN ROCK and heavy gravel involving 150,000 cu.yd.

For the Denver & Rio Grande Western R.R., F. R. Puder is division engineer and Glenn S. Turner, resident engineer, operating under the general direction of A. O. Ridgway, chief engineer.

THE COMPLETED JOB. Improved double track of Denver & Rio Grande Western ballasted with slag.

Next Month

Tractor Operation and Maintenance

A Few Don'ts For Operators Posed Especially for *Construction Methods*

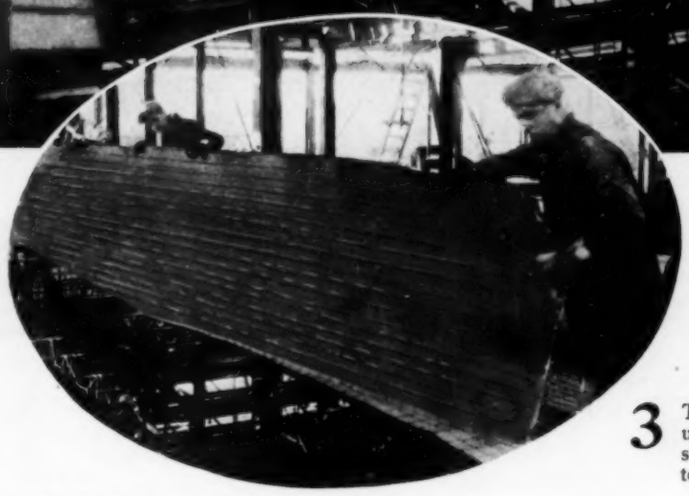
Floors *without* Forms

Contractor Poured Concrete Directly on Paper-Backed Steel Mesh Reinforcement for Six-Story Building

STEEL mesh reinforcement with a special waterproofed paper backing made it possible for Charles F. Wagner, contractor, to dispense with forms for the concrete floors of the Herbert V Realty Company's six-story Biarritz Apartment at Atlantic City, N. J. How the job was handled is told pictorially in the accompanying series of construction photos.

The design of the structure provided for 2½-in. concrete floor slabs carried on steel joists. Upon the joist supports

1 AFTER THE STEEL FLOOR JOISTS are in place, they are braced, laterally, with wire twisted up tight, after which the—



2 PAPER-BACKED REINFORCEMENT of welded wire mesh for the concrete floor slab is unrolled across the joists and cut to required length. As received on the job in rolls the wire mesh is on the outside so that, after unrolling, the strip is—

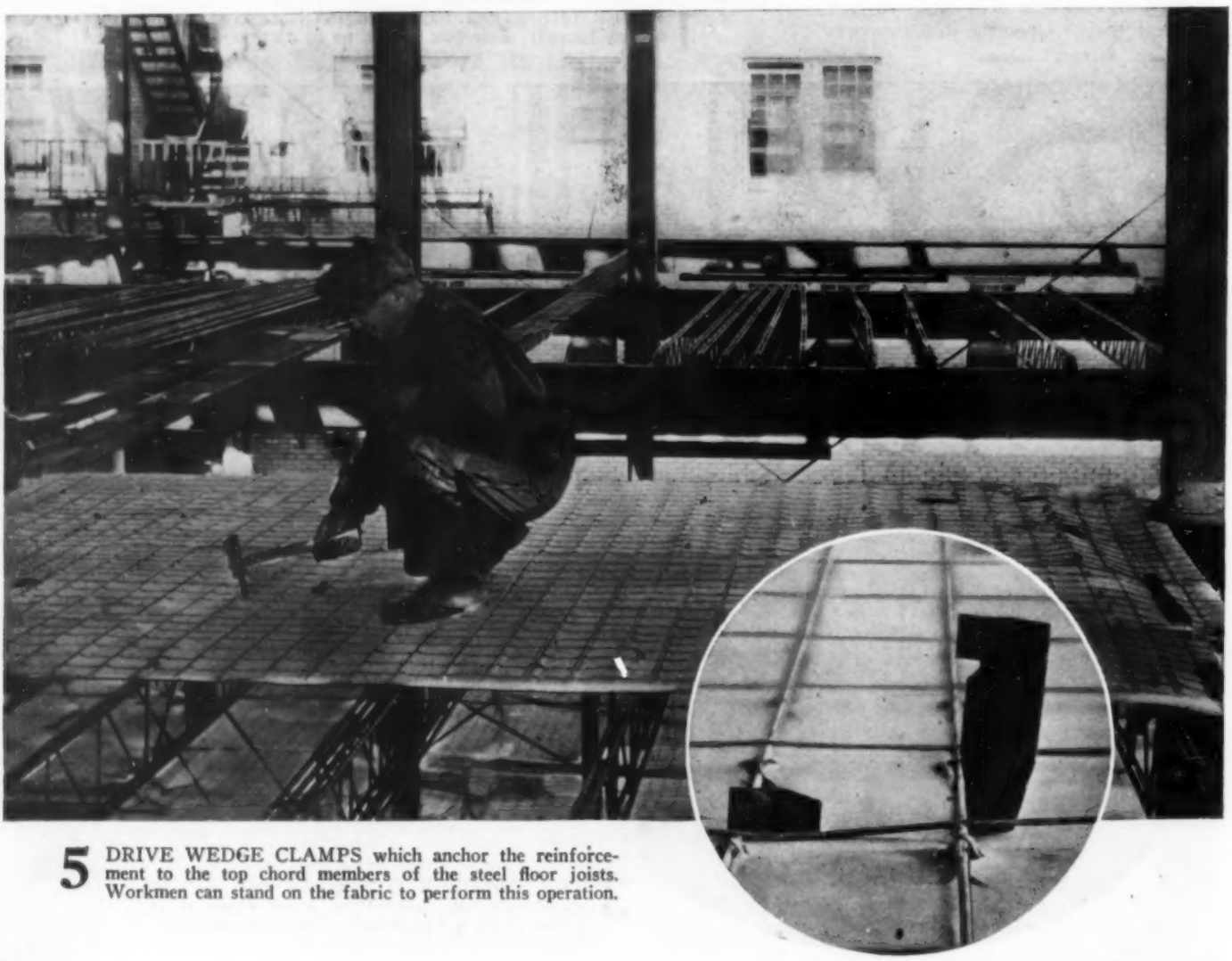
3 TURNED OVER to bring the paper backing underneath the steel fabric, from which it is separated by a ½-in. space. Then it is necessary to—

Floors Without

Steeltex, the National Steel Fabric Company's new form of paper-backed steel mesh reinforcement, was unrolled, pulled tight by a special screw jack, wedged with clips to the joists underneath, and then concreted in sections between wooden screed boards. The paper backing carried the weight of the green concrete and eliminated the use of any wood or metal forms for the floor slabs.

The steel reinforcement for the floors is welded into a 3x4-in. mesh of No. 12 gage galvanized wire delivered in rolls with paper backing attached. A ½-in. space between the mesh and paper backing allows the concrete to flow under and around the reinforcing wire members. The floor reinforcing ma-

4 STRETCH THE SHEET by means of a special screw-jack device. This is clamped to the fabric, one end is hooked to the top flange of a girder and tension applied by means of a ratchet handle operating a screw. To hold the sheet taut the next operation is to—

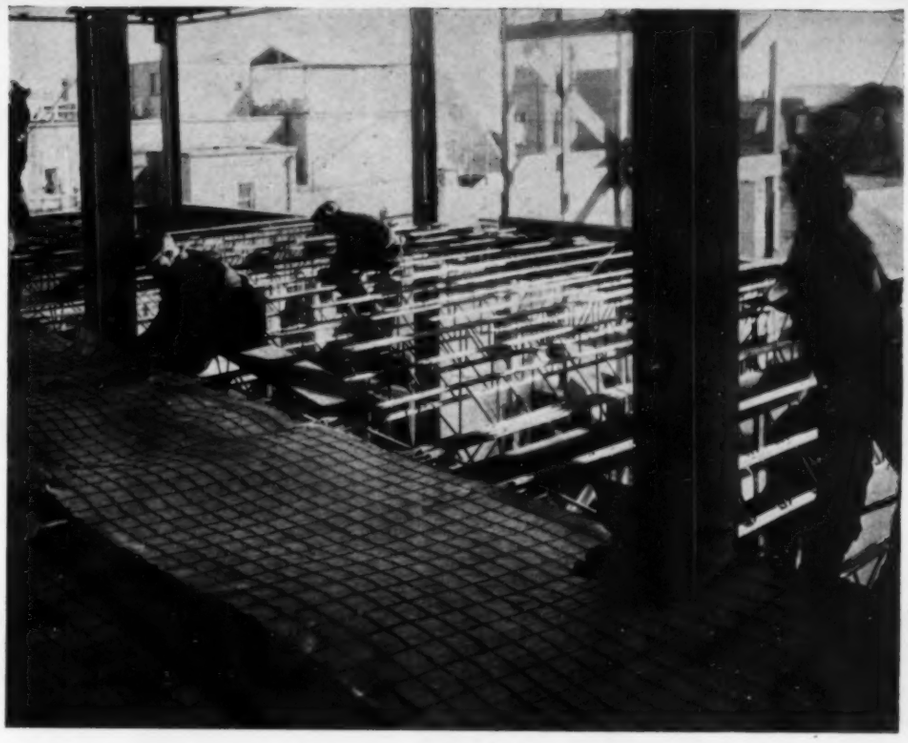


5 DRIVE WEDGE CLAMPS which anchor the reinforcement to the top chord members of the steel floor joists. Workmen can stand on the fabric to perform this operation.

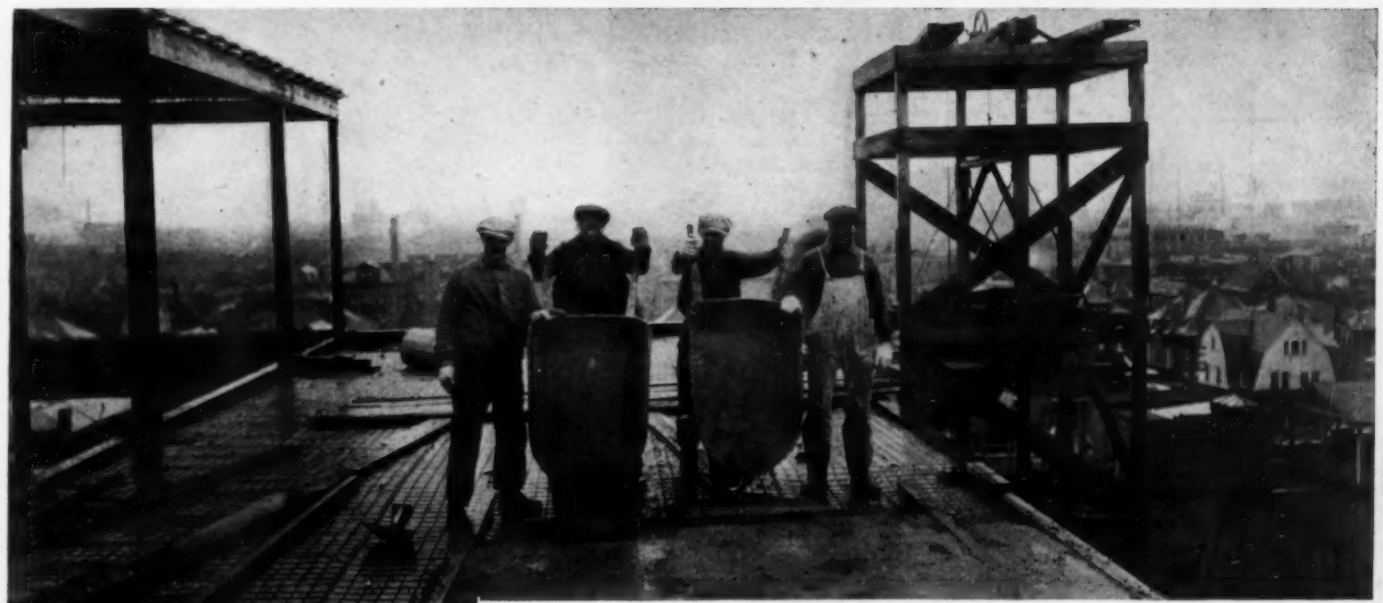
Forms (Continued)

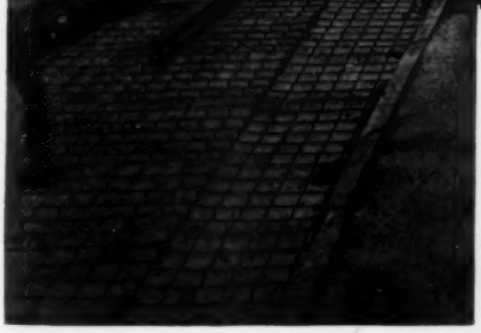
terial is an adaptation, on a heavier and stronger scale, of a similar lighter type of mesh reinforcement with paper backing previously developed for plaster base and stucco on walls. The floor reinforcement, properly stretched and wedged in place, is rigid and strong enough to carry workmen walking upon it.

In addition to doing away with forms, this type of construction, it is pointed out, prevents droppings of concrete during pouring, insures proper imbedding of the wire mesh reinforcement, and, by reason of the heavy waterproofed paper backing, has certain sound-deadening properties.

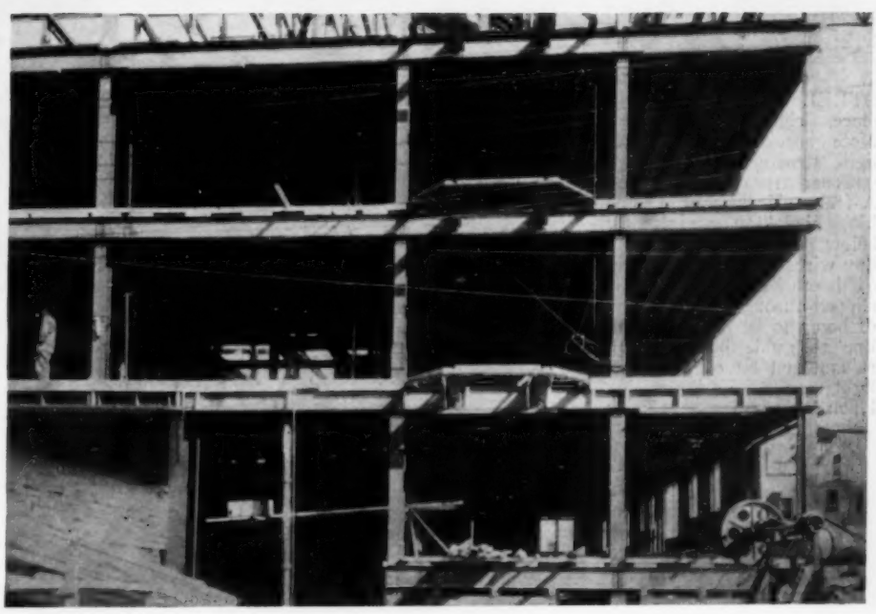


6 AT COLUMNS AND OTHER POINTS it is a simple matter to cut the fabric to fit and lap it up against the steel member. Then the job is ready for—





7 POURING THE CONCRETE, which is delivered in wheelbarrows on plank runways and brought to a 2½-in. thickness by screed boards. This operation—



8 COMPLETES THE FLOOR SLAB without resort to the use of wood or metal forms, the waterproof paper backing under the mesh serving to hold the concrete in place, with the steel properly imbedded.

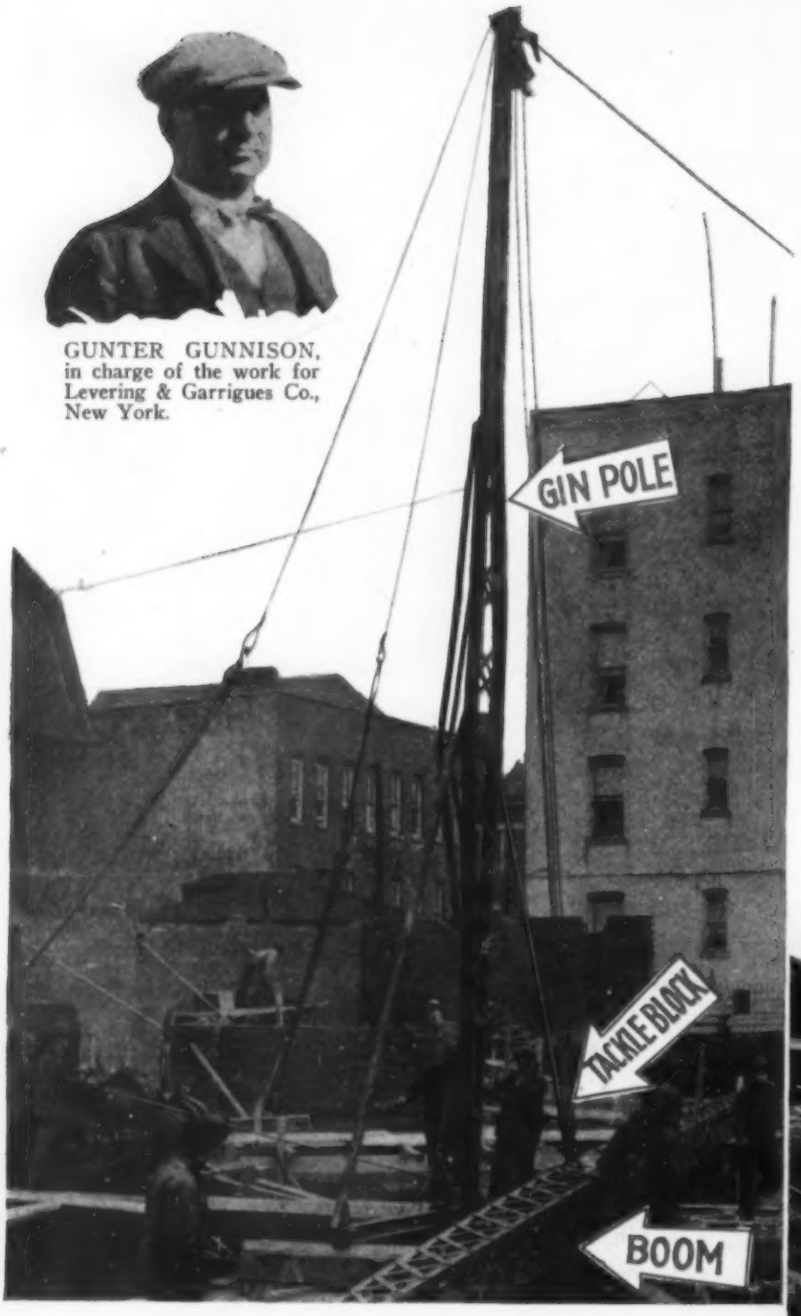
Step- by- Step

FIELD

Gin Pole Helps

GUNTER GUNNISON, in charge of the work for Levering & Garrigues Co., New York.

UNDER crowded working conditions on Brooklyn, N. Y., theatre contract, boom was delivered to job first and raised, to be used in turn as a pole to erect the mast. The mast was delivered after the boom was up and out of the way. Gunter Gunnison was in charge of this derrick erection for Levering & Garrigues Co., New York.

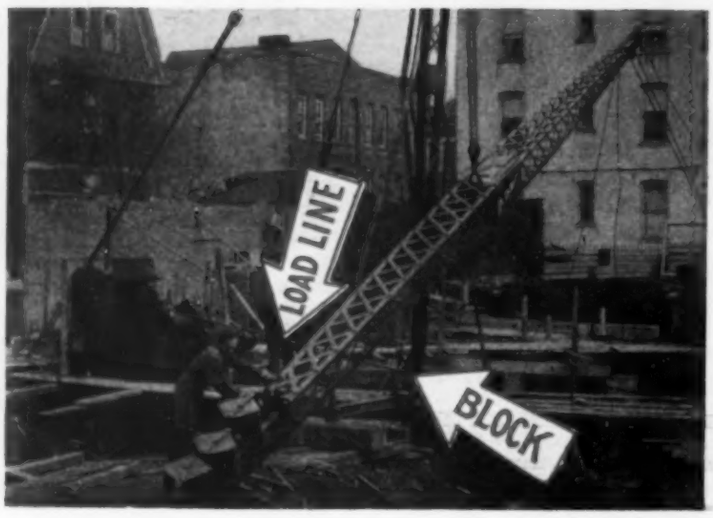


1

STEEL GIN POLE is in place, rigged and guyed. Note special design using light structural shapes with stiffener truss on back and A-frame side bracing. Tackle block hooked to boom slightly below center. Temporary guy wires are fastened to tip of boom. Manila rope is slipped through link on end of boom to be used as a tag line to guide boom during raising and later to take up light manila falls for raising block and rigging.

2

BASE OF BOOM is weighted with heavy blocks to hold lower end down as boom is lifted.



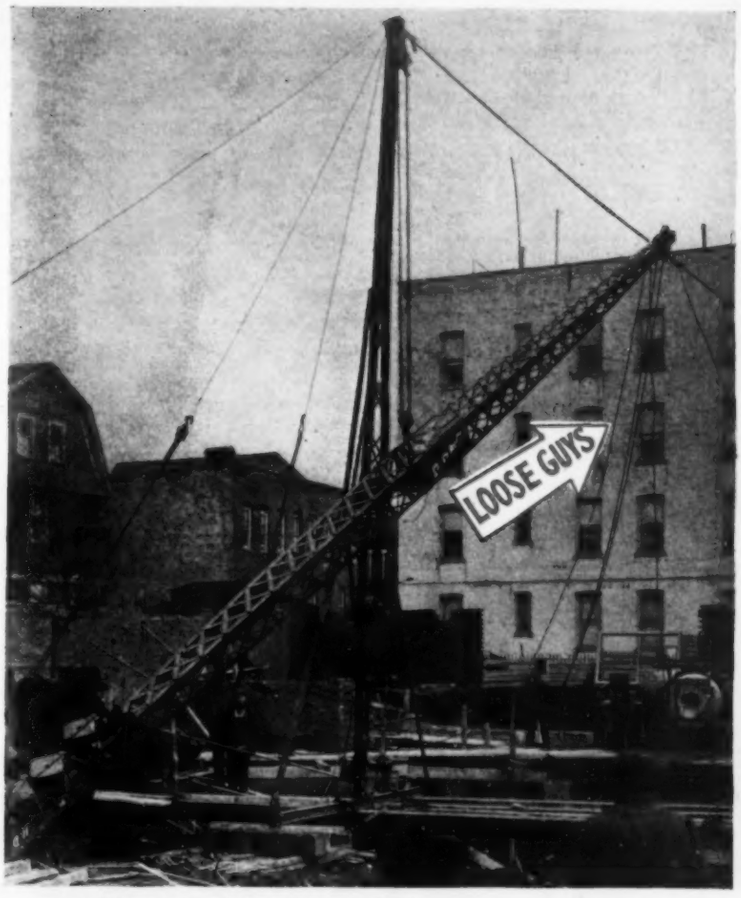
3

LASHING prevents base of gin pole from kicking out under pull of load line leading from hoist to block near base of pole and from there to block at top of pole.

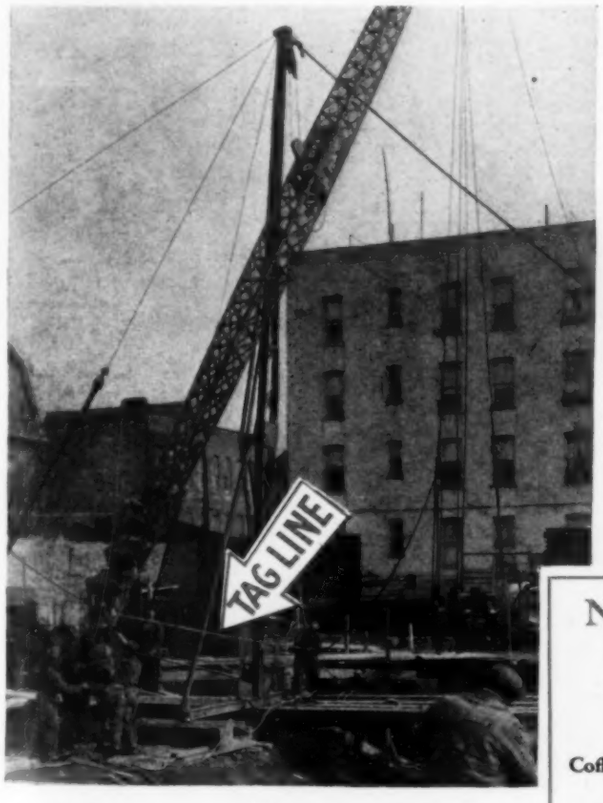
METHODS

Raise Guy Derrick

With guys taut, base of boom in Fig. 6 can be shifted farther from gin pole by raising boom slightly with the line from the gin pole which is still connected, and pulling boom base forward with tag line to new position of timber block, then slackening and tightening proper guys to bring it to vertical position. Heavy timbers are placed on each side of the foot block and lashed to the supporting timbers to prevent base from kicking out. The boom is then ready to be rigged for use as a gin pole in raising mast of guy derrick.



4 BOOM IS STARTING UP. Temporary guy wires and manila tag line are hanging from tip.



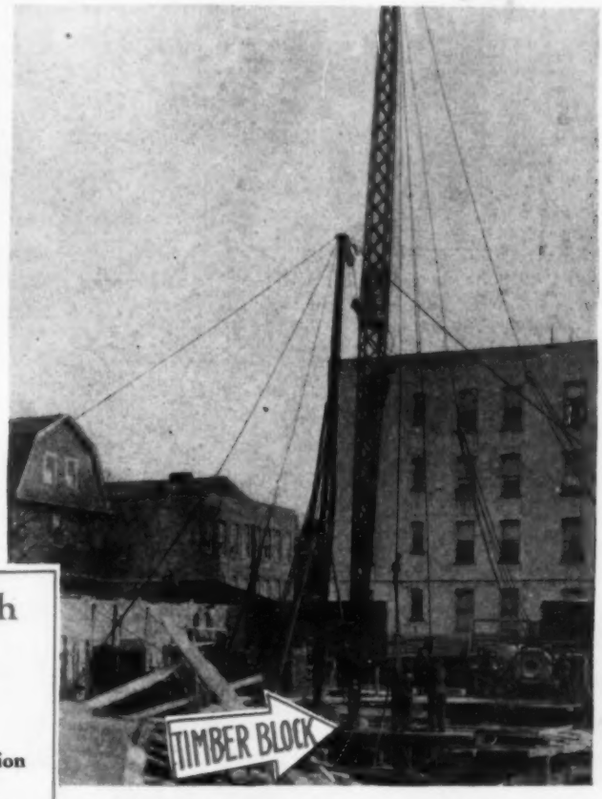
5 A TAG LINE is fastened to lower end to guide it to position. Light shoe is pinned to boom at this stage.

Next Month

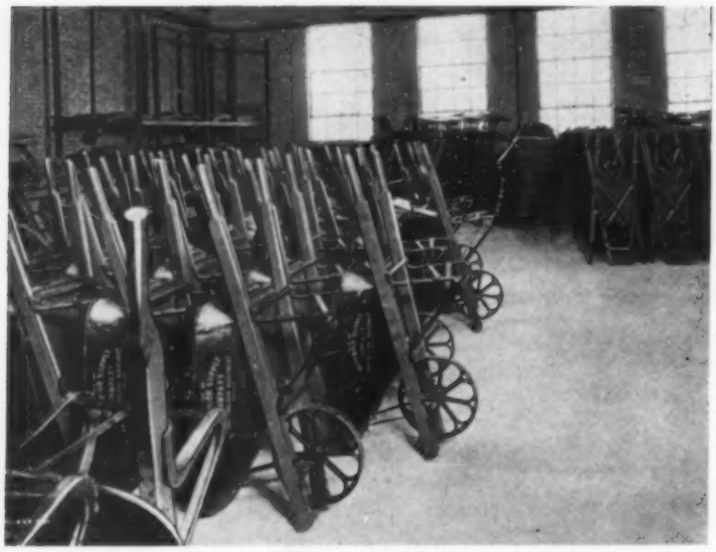
Step-by-Step Field Methods

on

Cofferdam Construction for Arlington Memorial Bridge Washington, D. C.



6 BOOM is vertical and rests on timber block. Men are ready to spread temporary guys, fasten them to bolts set in concrete foundations, and tighten them with tackles to adjust position of boom.



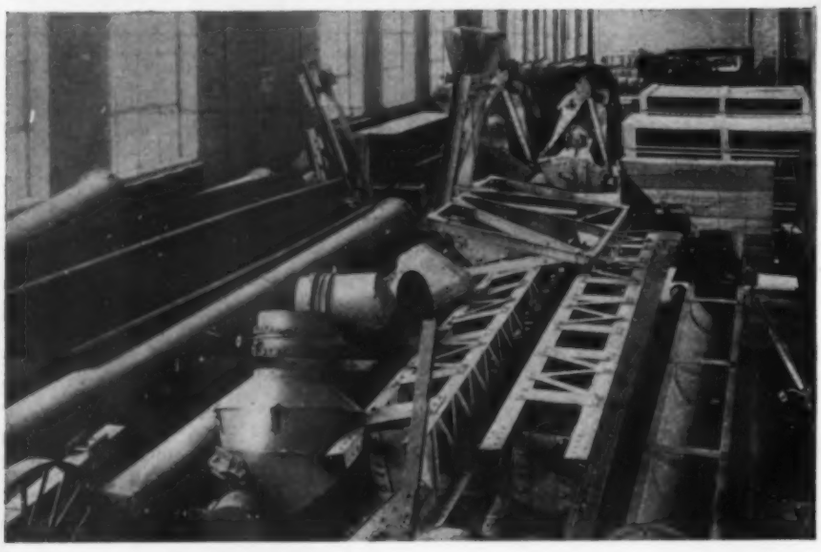
"WHEELBARROWS? CARTS? Right over here, sir." Corner of stockroom showing barrows and carts ready for immediate shipment.

The Contractor *Goes*

Showing how the modern displays

IT TAKES a lot of men behind the lines to keep the power shovels and excavators busy in the trenches, and prominent among these noncombatants are the equipment distributors, the men who supply the contractor with his "hardware."

This month *Construction Methods*



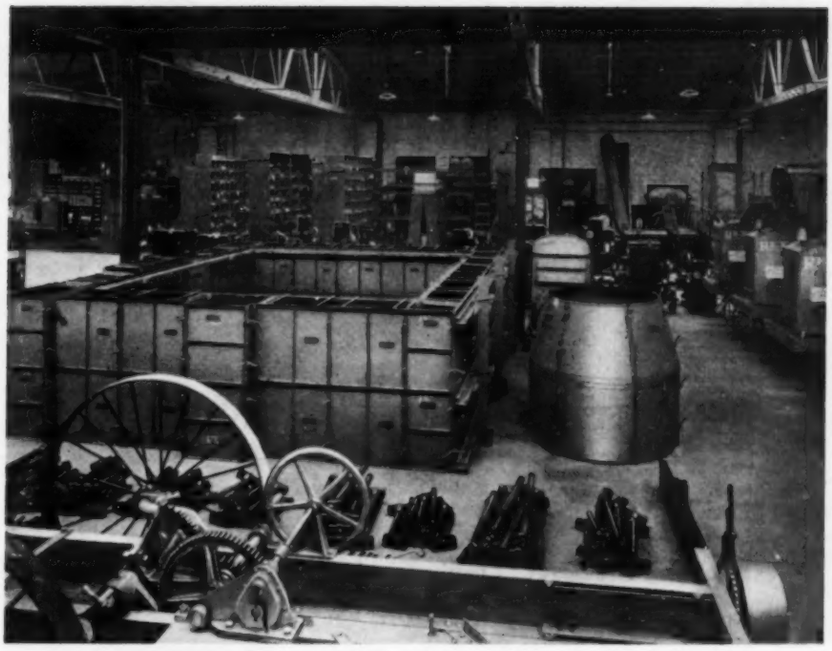
Above—"JUST STEP RIGHT AROUND AND LOOK THEM OVER, SIR." Pumps, mixers, truck parts, etc., lined up in rows for easy inspection.

Left—"SPOUTS AND CHUTES for a concrete job? Here you are. Complete stock, sir. Pick out what you want."

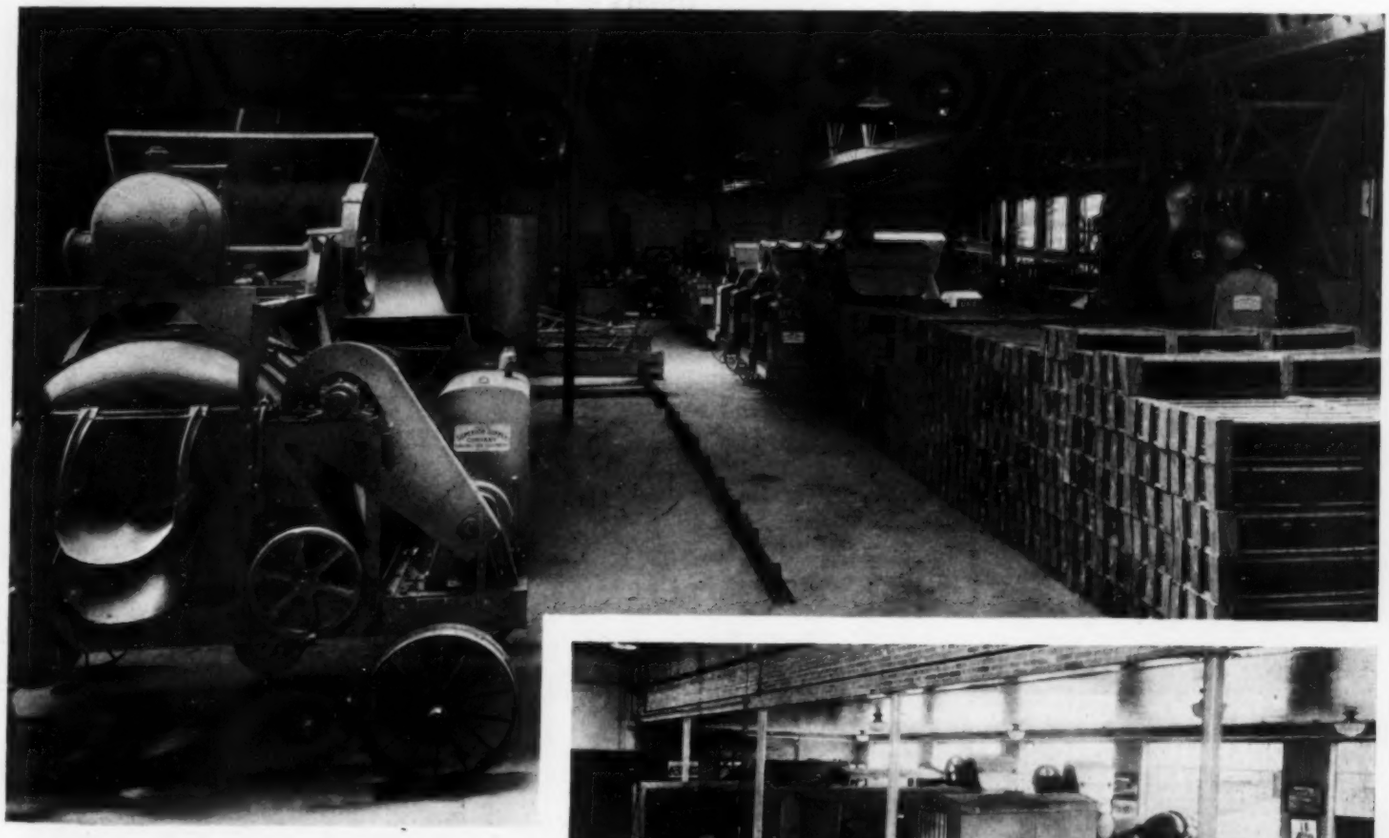
Shopping

equipment distributor his "hardware"

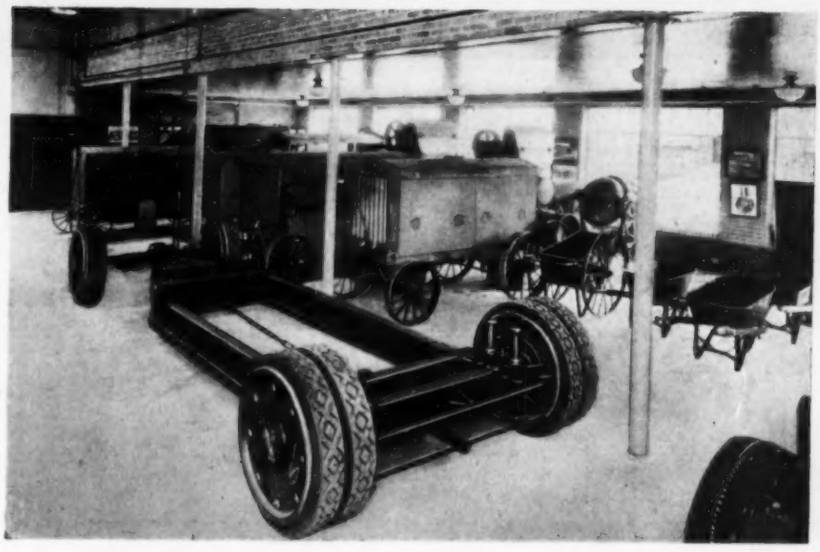
takes you for a trip through the showrooms of one of these dealers, the Superior Supply Company, Chicago. Here row on row of all kinds of equipment fills the well-lighted warehouse and showrooms, and it is all made easy for the busy contractor doing his shopping.



ALL KINDS OF CONSTRUCTION EQUIPMENT are kept on hand. In the rear—the spare parts section, with bolts, nuts, gear wheels, etc., ready for that rush repair job.



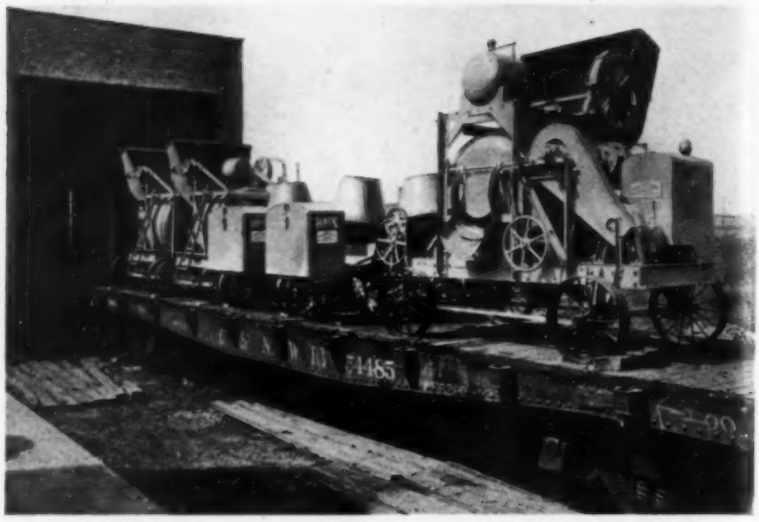
Above—PLENTY OF ROOM to shop. Wide aisles between the rows of equipment give plenty of chance for close inspection.



Right—FROM A WHEELBARROW TO A TRAILER, you're almost certain to find what you're looking for somewhere about the showrooms.

The Contractor *Goes Shopping*

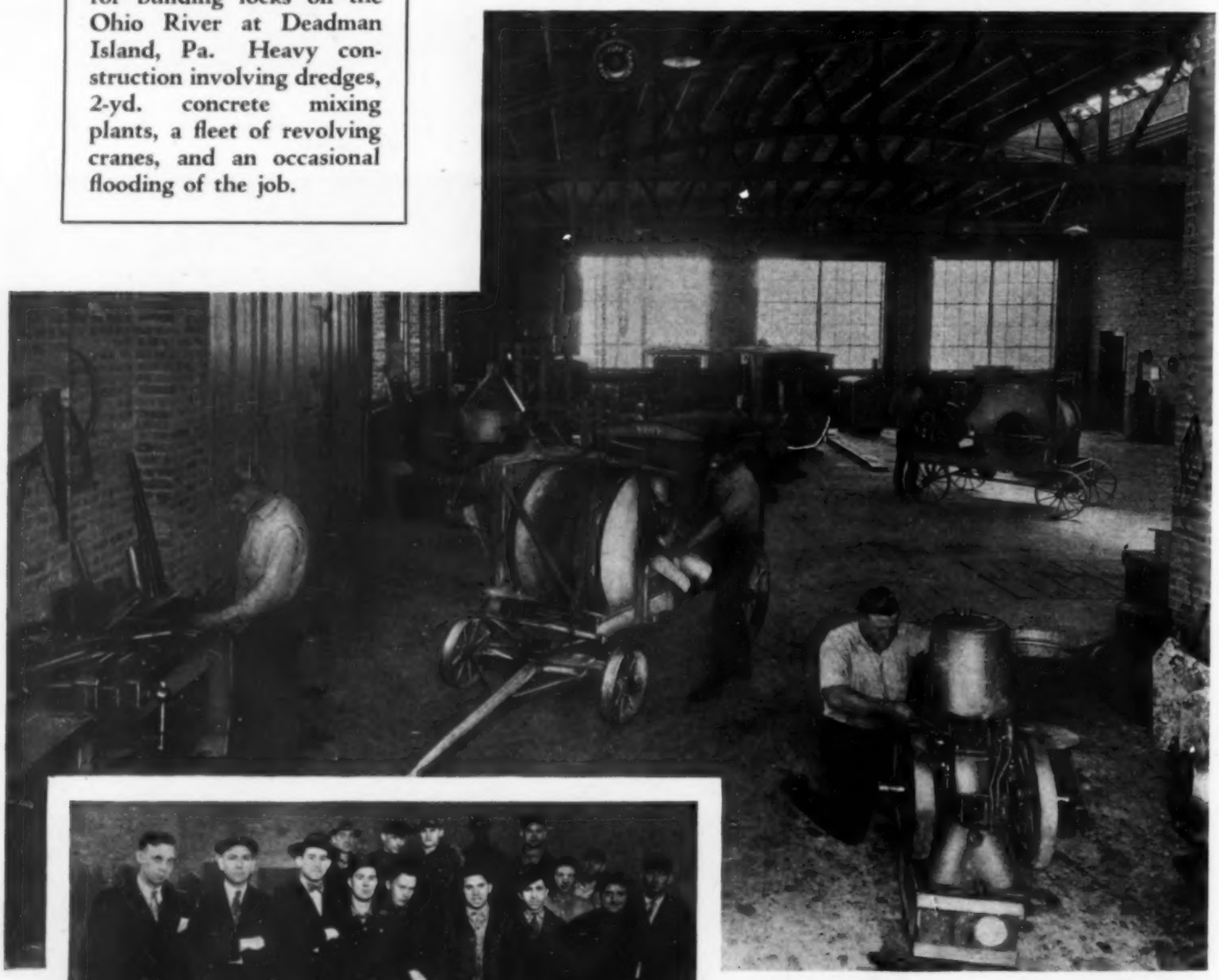
(Continued)



OUTWARD BOUND! The distributor also has facilities for carload shipments.

Next Month

A BIG COFFERDAM JOB for building locks on the Ohio River at Deadman Island, Pa. Heavy construction involving dredges, 2-yd. concrete mixing plants, a fleet of revolving cranes, and an occasional flooding of the job.



Above—REPAIR WORK also falls within the equipment distributor's province. A complete repair and machine shop is maintained.

Left—AND LAST OF ALL—but by no means least, the men who keep the machines steadily moving up to the front.

Who's Getting the Big Contracts?

A Monthly Guide to Where the Construction Dollar is Being Spent

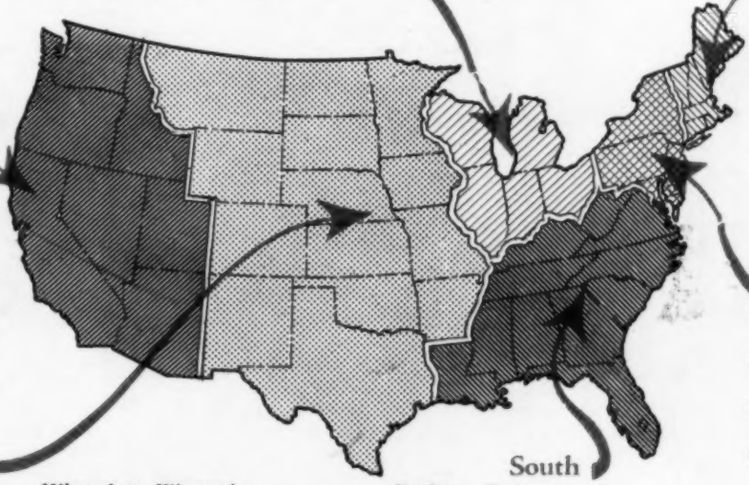
The MAN *and the* JOB

ON THIS PAGE *Construction Methods* lists some of the high-spot jobs for which important contracts have recently been let.

If you are looking for an opening in new territory, the information on this page may be of help in indicating where construction is active.

The contracts listed are, of course, only a few of the total number recently let. You may wish to ask about others. If so, address your inquiries to:

The Editor, *Construction Methods*,
Tenth Ave. at 36th St., New York



Pacific Coast

Portland, Ore.
Hospital: $1,238,167
N. P. Severin Co., 222 West Adams St., Chicago and others

Los Angeles, Calif.
Apartment: $1,000,000
Weymouth Crowell Co., 2104 East 15th St., Los Angeles, Calif.
Factory: $700,000 or more
J. V. McNeil Co., 5860 Avalon Blvd.
Synagogue and school: $633,800
H. M. Baruch Corp., 1015 Lincoln Bldg.
Store and office: $1,000,000
J. V. McNeil Co., 5860 Avalon Blvd.

Lovelock, Nev.
Earth fill dam: $650,000
Jasper-Stacy Co., 216 Pine St., San Francisco, Calif.

Idaho
Railway: $500,000
Morrison & Knudsen, Spokane, Wash.

Fort Townsend, Wash.
Water pipe line: $263,128
J. H. Coyne, Port Townsend

Sacramento, Calif.
Theatre: $475,000 (Est.)
C. Miles, 2509 L St.

Long Beach, Calif.
Store: $500,000
Meyer & Holler, Wright & Callender Bldg., Los Angeles
Sewers: $579,446
Torson Constr. Co., 6600 Independence Rd., Kansas City, Mo.

Washington
Roads: $450,754 (Total)
Rumsey & Jordan, 325 Lumber Exch. Bldg., Seattle, $319,980, Cole & Strong, 302 E. Ermina Ave., Spokane, $112,504

Ellensburg, Wash.
Earthwork, etc.: Total $783,588
General Constr. Co., Spokane Savings & Loan Bldg., Spokane, $353,769, Rumsey & Jordan, Seattle, $284,884

Seattle, Wash.
High School: $239,972
Western Constr. Co., Seaboard Bldg.

West of Mississippi

Texas
Oil pipe line: $7,000,000
Illinois Pipe Line Co., Midland, Tex. (by day labor)
Oil pipe line: $2,600,000
Sinclair Pipe Line Co., Mexia, Tex. (by day labor)

Del Rio, Texas
Storage tanks: $2,000,000
Mount Cooper Boiler & Iron Works, Del Rio

Ft. Worth, Tex.
Plant: $1,293,000
T. S. Byrne, Van Zandt Bldg., Ft. Worth

Arkansas
Roads: $2,592,729 (Total)
J. P. McNulty, Pine Bluff, $248,968, Ellis & Lewis, Muskogee, Okla., $134,241

Iowa
Paving: $1,741,626
C. F. Lytle Constr. Co., 504 Nebraska St., Sioux City, Ia.

Corpus Christi, Tex.
Compress: $375,000
L. T. Wright & Co., 911 Builders Exch. Bldg., San Antonio

Brownsville, Tex.
Bridge: $500,000 (Est.)
Puget Sound Bridge & Dredging Co., Central Building, Seattle, Wash.

Fulton, Ark.
Bridge: $477,058
Kelaher Constr. Co., Howe Inc., Bldg., Little Rock

Manhattan, Kan.
Power house: $151,827
M. J. Green, Manhattan

St. Louis, Mo.
Community building: $375,000
William H. & Nelson Cunliffe Co., 410 N. Euclid Ave.

Middle West

Michigan and Ontario
Tunnel: $10,000,000
Parklap, Inc., 506 Marquette Bldg., Detroit, Mich.

Chicago, Ill.
Factory: $1,000,000 (Est.)
Henry Ericcson Co., 228 North La Salle St., Chicago

St. Paul, Minn.
Grain elevator: $800,000 (Est.)
Superstructure, Barnett & A. Record Co., 417 Lyceum Bldg., Duluth, Minn., Foundation, Peppard & Fulton Co., 217 Board of Trade Bldg., Superior, Minn.

Milwaukee, Wisconsin
Institutions: Total, $1,350,684
(a) Theodore Stark & Co., 130 Muskego Ave., $425,000, (b) Starch Bros., Inc. 265-3rd Ave., $130,300 and others

Chicago, Ill.
Store: $2,000,000 (Est.)
Starrett Bldg. Co., 8 South Dearborn St., Chicago

Cleveland, Ohio
Terminal: $3,500,000
John Gill & Sons, Bulkley Bldg., Cleveland, O.

Detroit, Mich.
Water Tunnel: $779,901
J. A. Mercier, 616 Hammond Bldg., Detroit

Cleveland, Ohio
Laboratory: Est. $750,000
Crowell & Little Constr. Co., Hanna Bldg.

Illinois
Highways: Total, $1,482,375
Henkel Constr. Co., Mason City, Ia., $655,888, S. J. Groves Sons Co., 306 Globe Bldg., Minneapolis, Minn., $212,641 and others

Ann Arbor, Mich.
League building: $600,000
Levering Longbotham Co., Builders Exchange Bldg., St. Paul, Minn.

Elgin, Ill.
Bank and office: $750,000
St. Louis Bank Building & Equipment Co., 900 Sidney St., St. Louis, Mo.

South

Durham, N. C.
College: $2,000,000
Duke University will build under supervision of architect

New Orleans, La.
Excavation: $980,000
Orleans Dredging Co., Maison Blanche Bldg.

Georgia
Paving: Total $2,502,614
W. H. Anderson, Asheville, Hamilton Sta., Birmingham, Ala., $226,915, Whitley Constr. Co., La Grange, Ga., $288,785, Hardaway Contg. Co., Columbus, Ga., $307,424.

Winston-Salem, N. C.
Railroad yard: $800,000
Walton Constr. Co., Roanoke, Va.

Louisville, Ky.
High school: Total, $669,675
General Contr. Rommel Bros., 919 East Bway., $609,000

North Carolina
Bridges and culverts: Total, $210,902
J. S. Bowers, Whiteville, $113,950 and others

Birmingham, Ala.
Store: $500,000
Southern Ferro Concrete Co., 70 Ellis St. N.E. Atlanta, Ga.

New England

Boston, Mass.
Retail store and mail order house: $4-5,000,000
Hegeman-Harris Co., 100 Milk St., Boston

Springfield, Mass.
Hotel: $1,000,000
E. J. Pinney, Inc., 220 Dwight St., Springfield, Mass.

Providence, R. I.
Courthouse: $1,345,364
J. W. Bishop Co., 93 Eddy St., Providence

Cambridge, Mass.
Department Store: $1,000,000
Hegeman-Harris Co., 100 Milk St., Boston, Mass.

Connecticut
Highways: $1,024,849
D. Arrigoni, Main St., Middletown, $295,585, J. Arborio, 83 Church St., New Haven, $197,471 and others

Bridgeport, Conn.
Store: $500,000
Purdy Constr. Co., 1481 Seaview Ave.

Massachusetts
Highways: $400,779
G. Rossi & Son, Leominster, $127,037, Kelliher Corp., Turners Falls, $137,018

Massachusetts
Underground conduit etc: $406,182
New England Telephone & Telegraph Co. (owner), 245 State St., Boston

Somerville, Mass.
High School: $965,000
General Contr. C. H. Cunningham & Co., 23 Central Ave., Lynn., $820,000, Heating J. S. Cassidy, 133 Austin St., Cambridge, $145,000

Middle Atlantic

New York, N. Y.
Dam, Contr. 4.: $1,307,086
S. J. Groves & Son, Drake Bldg., Ticonderoga, N. Y.
Subway: $6,946,895
Eastern Contg. Co., 236 W. 116th St., New York
Office: $5,000,000
A. E. Lefcourt Corp., 1351 Bway., N. Y. C. Separate contracts

Brooklyn, N. Y.
Apartment: $1,500,000
A. J. Thomas, archt., 2 West 46th St., New York. Separate contracts
Subway: $3,833,472
A. A. Johnson Co., Central Park West and 81st St., New York

Harrisburg, Pa.
Office: $2,739,915
James Baird Co., 1320 New York Ave., N. W. Wash. D. C. and others

Pittsburgh, Pa.
Hotel: $2,000,000
H. L. Stevens Co., 522 Fifth Ave., New York

Washington, D. C.
Bridge superstructure: $1,576,686
Hunkin-Conkey Constr. Co., Hunkin-Conkey Bldg., Cleveland, O.

Philadelphia, Pa.
Coke ovens and gas plant: $8,000,000
Koppers Co., Union Trust Bldg., Pittsburgh, Pa.

Washington, D. C.
Memorial building: $530,000
C. H. Tompkins Co., 1614 Park Rd., N.W.

Montclair, N. J.
Nurses home: $450,000
Doe-Wathey Co., 178 Abington Ave., Newark

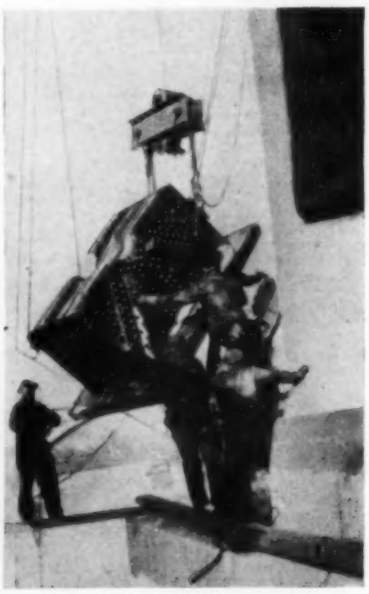
This Month's Prize Winners

First Prize $25.00

Won by W. G. RAPP, Field Engineer,
McClintic-Marshall Co.,
New York, N. Y.

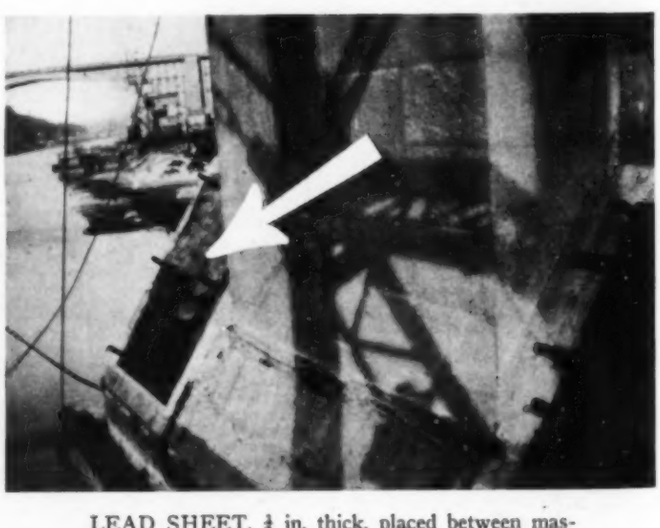
Reconstructing High Bridge, New York City

NEW STEEL ARCH replaces old masonry structure on piers which obstructed Harlem River. Big traveling gantry helped demolish old masonry and set new steel.



SETTING the north pedestal on the Bronx side of the bridge.

FIRST STEEL MEMBER arriving by motor truck and trailer on Manhattan side of bridge.



LEAD SHEET, ¼ in. thick, placed between masonry abutment and steel pedestal to insure even bearing.

in the Photographic Contest

Second Prize $15.00

Won by R. D. HOUK, Timekeeper,
R. V. Baldwin, General Contractor,
Coraopolis, Pa.

Crib Wall Retains Hillside Street

CLAMSHELL BUCKET and locomotive crane handled the excavation for crib wall along hillside street at Corapolis, Pa.

PRECAST CRIB MEMBERS of reinforced concrete were handled in pairs by line from crane boom.

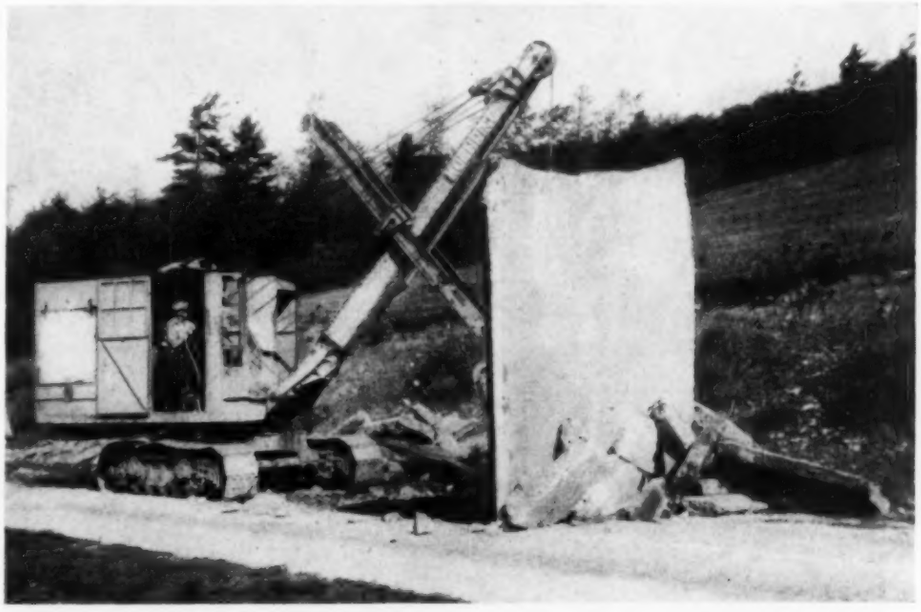
COMPLETED CRIB WALL with backfill of granulated slag in place, is 22 ft. high and 136 ft. long. "The cost of this wall," says Mr. Houk, "was less than half the cost of a solid concrete wall."

Third Prize

$10.00

Won by W. C. Ruland
Assistant Engineer,
N. Y. State Bureau of Highways,
Cobleskill, N. Y.

UP IT COMES! When it became necessary to remove a stretch of 8-in. reinforced concrete pavement on a highway job in New York State, this Koehring gas shovel did the job in jig time. Most of the breaking was done by the shovel which also loaded the pieces on trucks.



Enter Your Photos for the April Contest

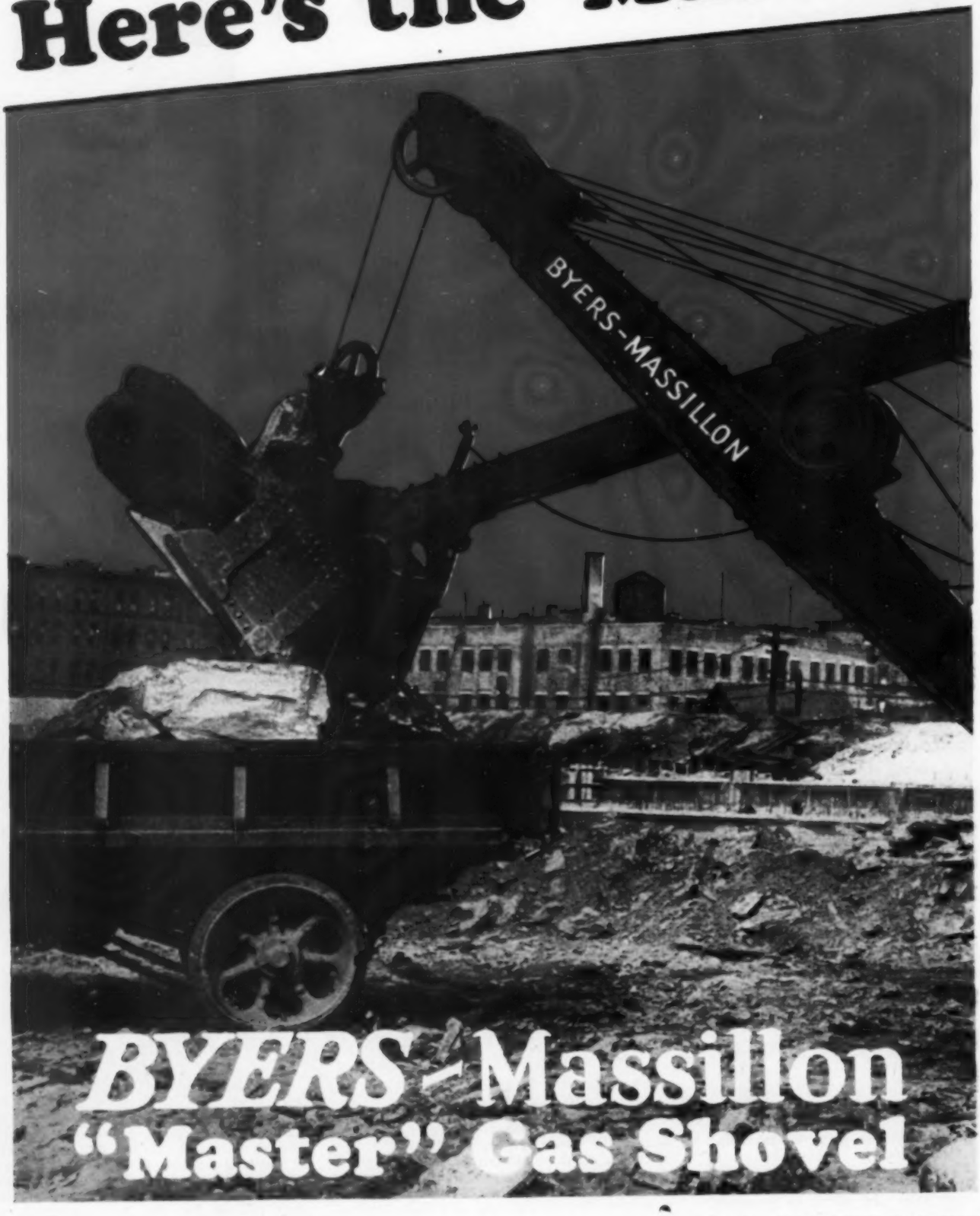
EVERY month *Construction Methods* awards three prizes of $25, $15, and $10 for the most useful, novel, and attractive pictures taken on construction jobs.

New conditions for the contest, stated below, make it unnecessary for you actually to take the pictures yourself.

New Contest Rules

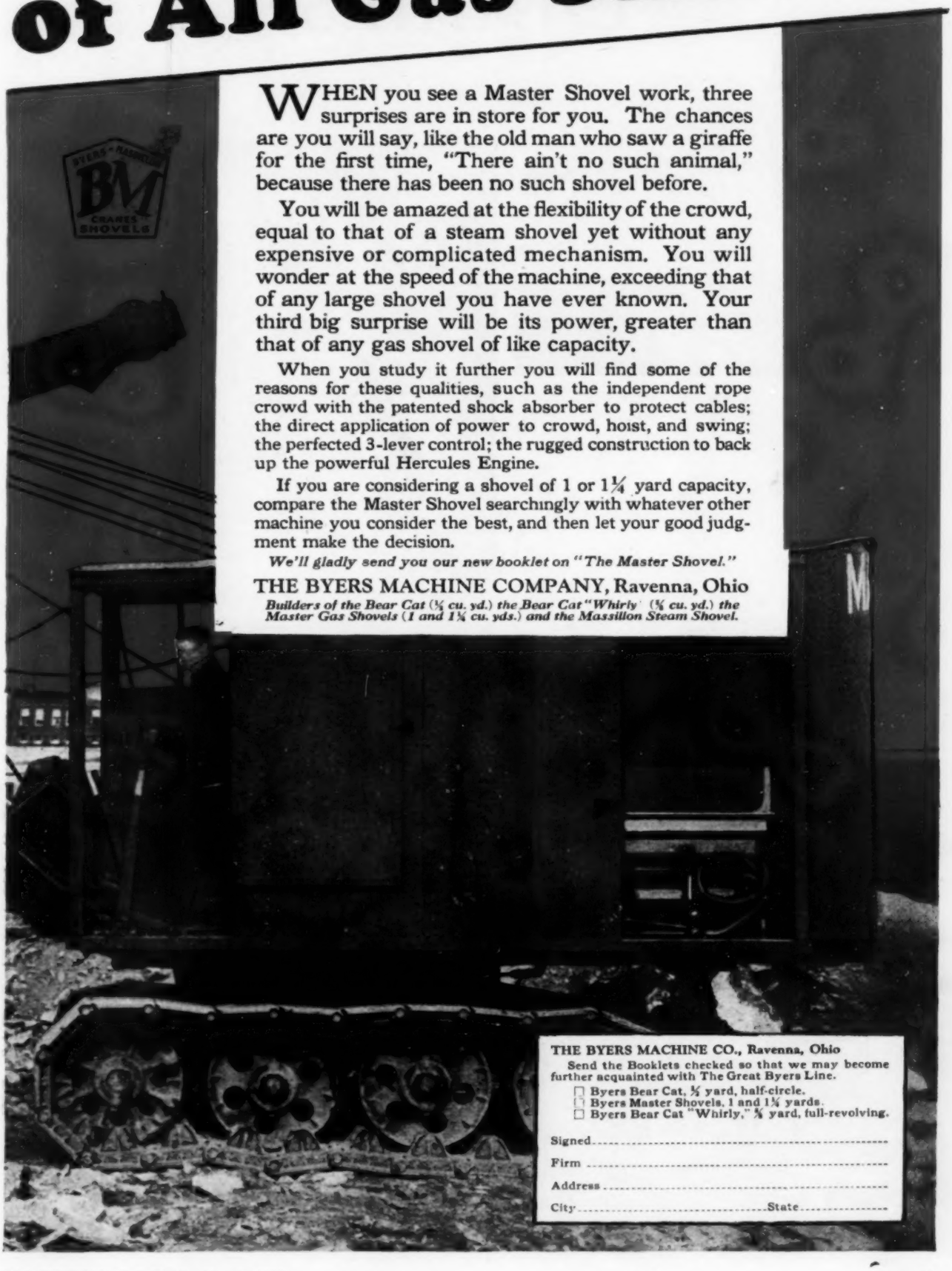
For the April contest, which closes March 8, the revised conditions are: Pictures must be submitted to *Construction Methods*, Tenth Avenue at Thirty-sixth Street, New York City, by a man regularly employed on the job, even though he may not have taken the pictures himself. The pictures should be plainly marked "Photographic Contest." Those received after March 8 will be entered in the May contest. *Construction Methods* will pay for all non-prize-winning pictures it uses. Enter your photos for the April contest.

Here's the "Master"



BYERS-Massillon
"Master" Gas Shovel

# of All Gas Shovels



WHEN you see a Master Shovel work, three surprises are in store for you. The chances are you will say, like the old man who saw a giraffe for the first time, "There ain't no such animal," because there has been no such shovel before.

You will be amazed at the flexibility of the crowd, equal to that of a steam shovel yet without any expensive or complicated mechanism. You will wonder at the speed of the machine, exceeding that of any large shovel you have ever known. Your third big surprise will be its power, greater than that of any gas shovel of like capacity.

When you study it further you will find some of the reasons for these qualities, such as the independent rope crowd with the patented shock absorber to protect cables; the direct application of power to crowd, hoist, and swing; the perfected 3-lever control; the rugged construction to back up the powerful Hercules Engine.

If you are considering a shovel of 1 or 1¼ yard capacity, compare the Master Shovel searchingly with whatever other machine you consider the best, and then let your good judgment make the decision.

We'll gladly send you our new booklet on "The Master Shovel."

THE BYERS MACHINE COMPANY, Ravenna, Ohio

Builders of the Bear Cat (½ cu. yd.) the Bear Cat "Whirly" (¾ cu. yd.) the Master Gas Shovels (1 and 1¼ cu. yds.) and the Massillon Steam Shovel.

THE BYERS MACHINE CO., Ravenna, Ohio

Send the Booklets checked so that we may become further acquainted with The Great Byers Line.

- ☐ Byers Bear Cat, ½ yard, half-circle.
- ☐ Byers Master Shovels, 1 and 1¼ yards.
- ☐ Byers Bear Cat "Whirly," ¾ yard, full-revolving.

Signed.....

Firm.....

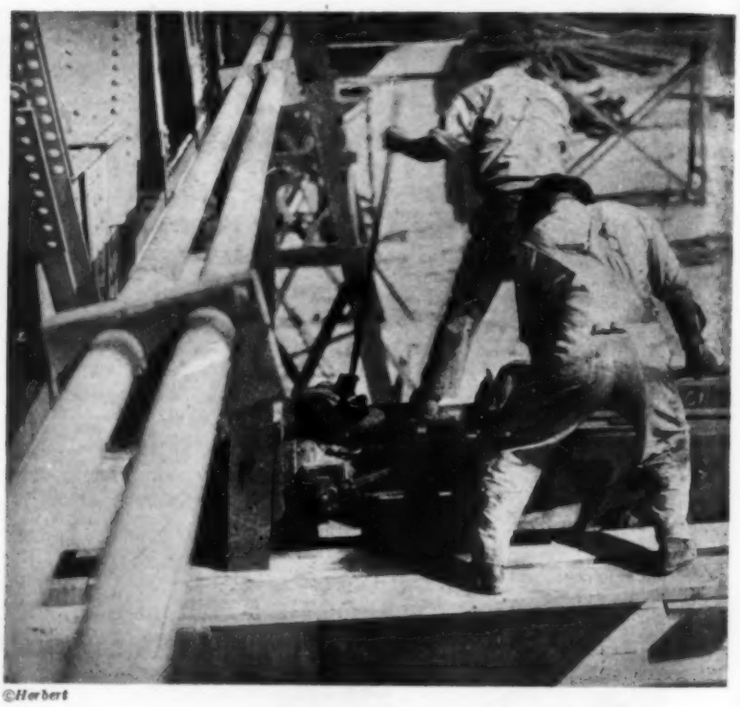
Address.....

City.....State.....

Getting Down to DETAILS

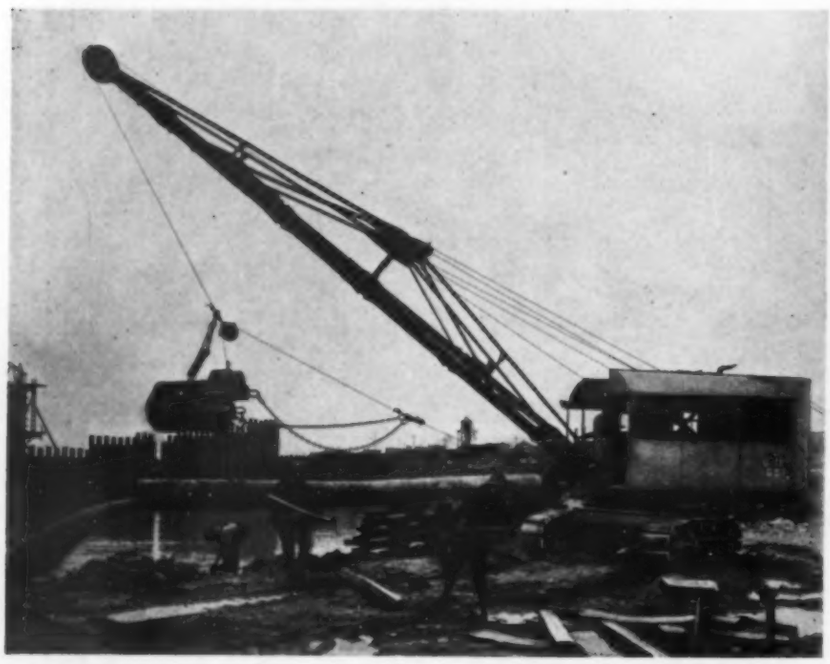
Close-up Shots of Job Methods and Equipment

SPECIAL BOOM on Northwest crane for plank road improvement near Detroit.



©Herbert

JACKS (*right*) move old bridge to make way for a new one without disturbing traffic at Montebello, Calif.

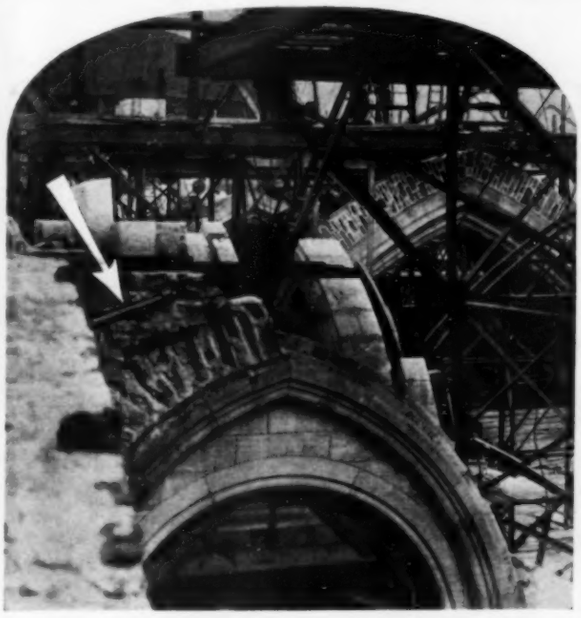


DRAGLINE takes time off to shift sluice pipe on U. G. I. Contracting Company's Rocky River (Conn.) dam and power plant project.

DRILL on two-wheel carriage cuts down high joints on concrete pavements of Ohio state highway department's system.

This Month's $10 Prize Picture
From G. Hitchcock, Spokane, Wash.

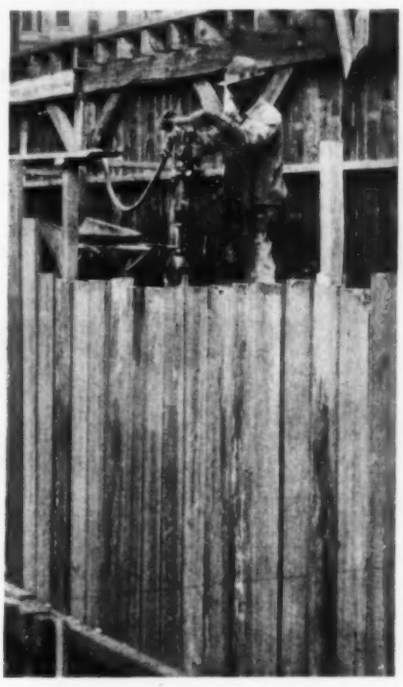
DITCHING with a Caterpillar tractor. Miller & Paulsen devised this slip-scraper and A-frame rig for sewer construction in Spokane, Wash.



$10 PRIZE

every month for the best *close-up* picture showing interesting and practical details of construction.

Send the Editor of *Construction Methods* close-ups from your job.



VERSATILITY is a feature of this Sullivan paving buster. Here it is (*above*) driving sheet-piling for the Danis-Hunt Company, Dayton, Ohio, Contractors.

TO MELT SNOW (*above*) extra heavy wrought-iron pipe was imbedded in the roof masonry of the Cathedral of St. John the Divine, New York. Leak-proof joints were made with Linde oxy-acetylene welding equipment.

"ALL ASHORE that's going ashore!" This Link-Belt crane on Louisville, Ky., hydro-electric plant construction builds its own gangplank from barge to wharf.

THIS JOB-MADE SHOVEL, rigged on front of truck, solves hill slide problem on state roads in Missouri.

Kink No. 1

REMOVING HILL SLIDES

Ingenious Rig Converts Motor Truck Into Shovel

Highway Maintenance

LIGHT BUT STRONG, it scoops into the slides. A wheeler pan, angle bars, and steel cable are all the material needed. Arms holding pan have two cables which run over sheaves above radiator and under sheaves anchored at base of radiator; then to bed of truck. Latter is underbody hoist, and raising body raises boom arm.

AFTER SCOOPING OUT LOAD, truck-shovel backs across road and is ready to deliver earth to motor truck.

Kink No. 2

REBUILDING SHOULDERS

on High Fills Showing Method Devised Where It Is Impossible to Use Teams or Tractors in Borrow Pits

HERE'S THE PLANT which solves the problem of rebuilding high shoulder fills—tractor, truck, two slips, and two blocks.

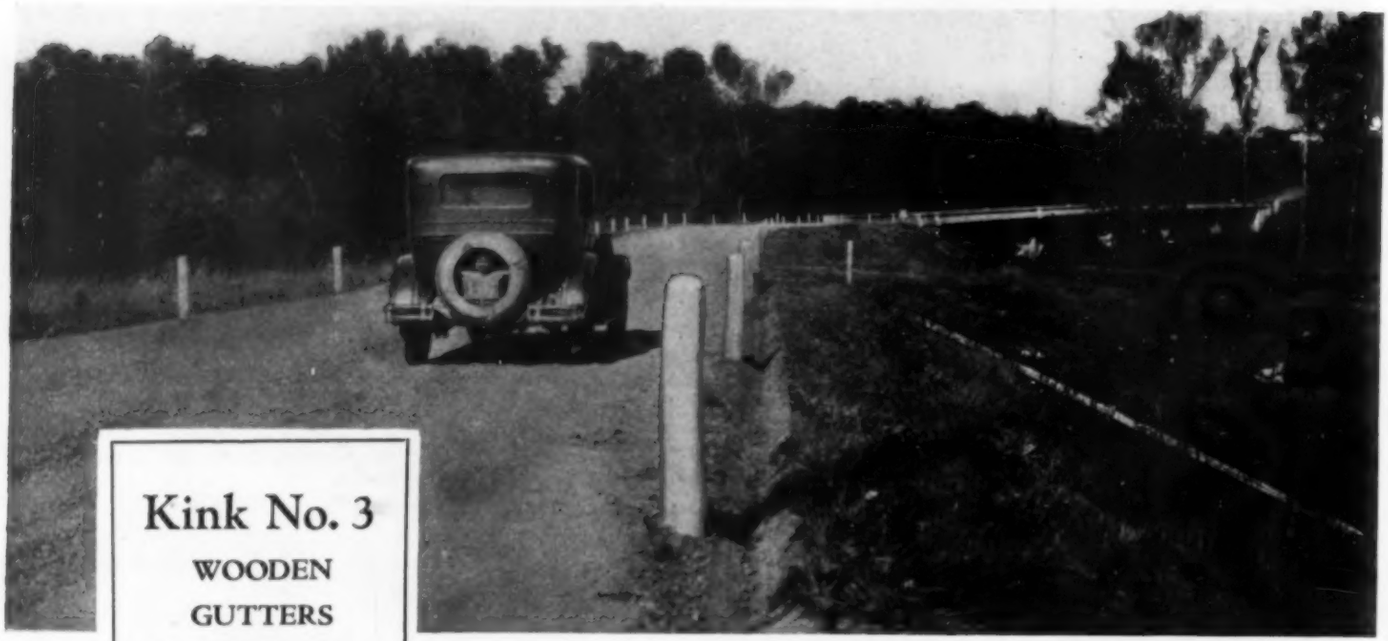
Kinks *in Missouri*

Above—THE TRUCK SERVES as deadman, with blocks attached for cables running from tractor to slips.

Left—UP THEY COME! Both lines of cable pass through blocks on truck and extend forward to tractor.

OVER THEY GO! Mighty handy where teams and tractors can't get in borrow pits. State highway department moves earth for 16 to 18 cents a yard by this method.

Missouri Maintenance Kinks *(Continued)*



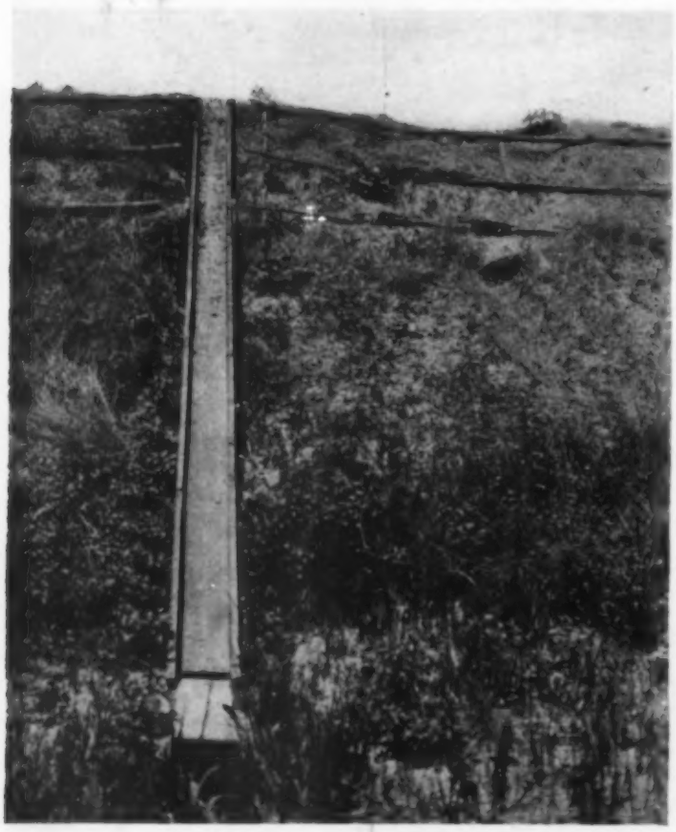
Kink No. 3

WOODEN GUTTERS Prevent Washing of Slopes on High Fills

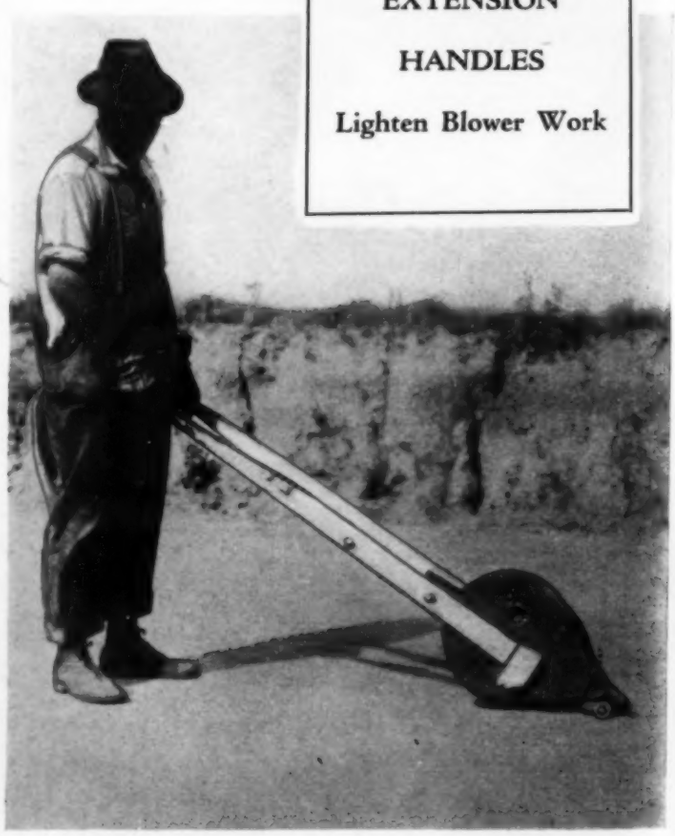
WOODEN SHOULDER GUTTERS AND RUN-OFF CHUTE prevent wash on high fills along Missouri state roads. Water is carried along shoulder and down chute. Note posts protecting gutter.

Kink No. 4

EXTENSION HANDLES Lighten Blower Work



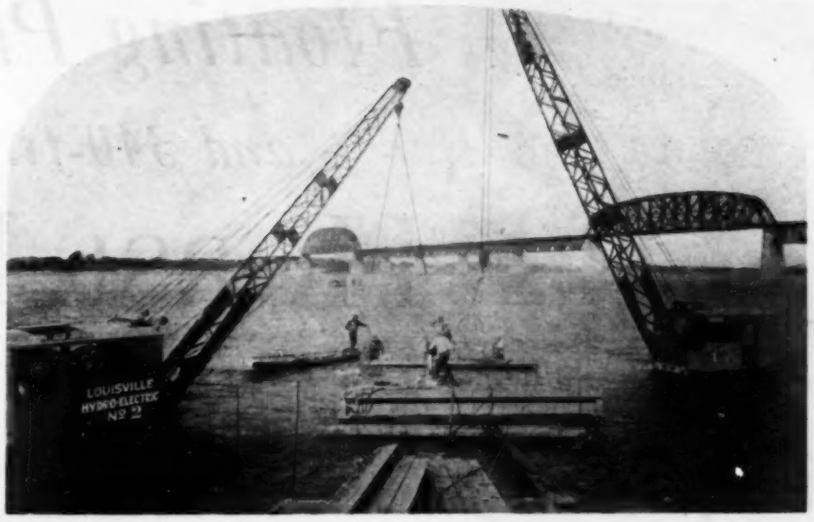
WOODEN RUN-OFF TROUGH, which carries water to toe of slope. It is raised off ground to prevent rotting. Note sapling mat holding straw placed on fill during settling.



THESE EXTENSION HANDLES on bellows save back aches when blowing loose particles and dust out of cracks and off center strip area previous to pouring and stripping.

JOB ODDITIES

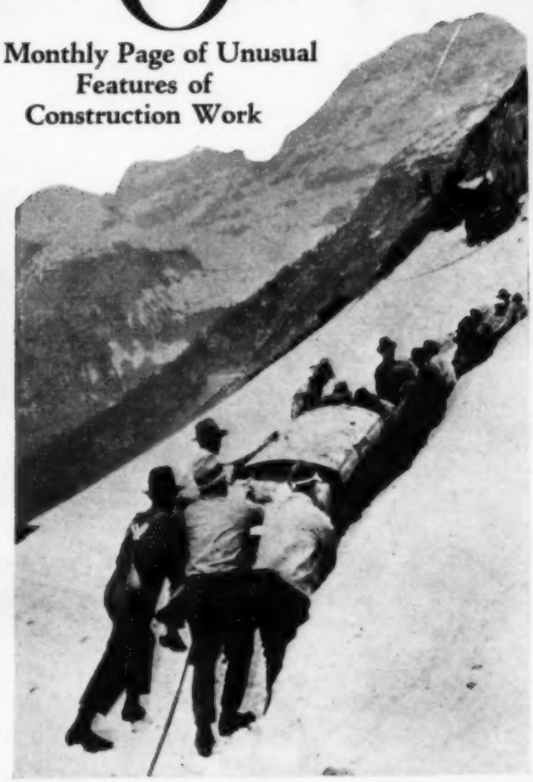
A Monthly Page of Unusual Features of Construction Work



AMPHIBIOUS! These Link-Belt locomotive cranes, on crawlers, waded right in to the Ohio River to help build cofferdam cribs for the Louisville Hydro-Electric Company.

PARACHUTES offer the only means of escape for prisoners serving jail sentences in Miami, Fla. The jail (*below*) occupies the uppermost stories of the newly constructed 27-story Court House.

©P.&A.

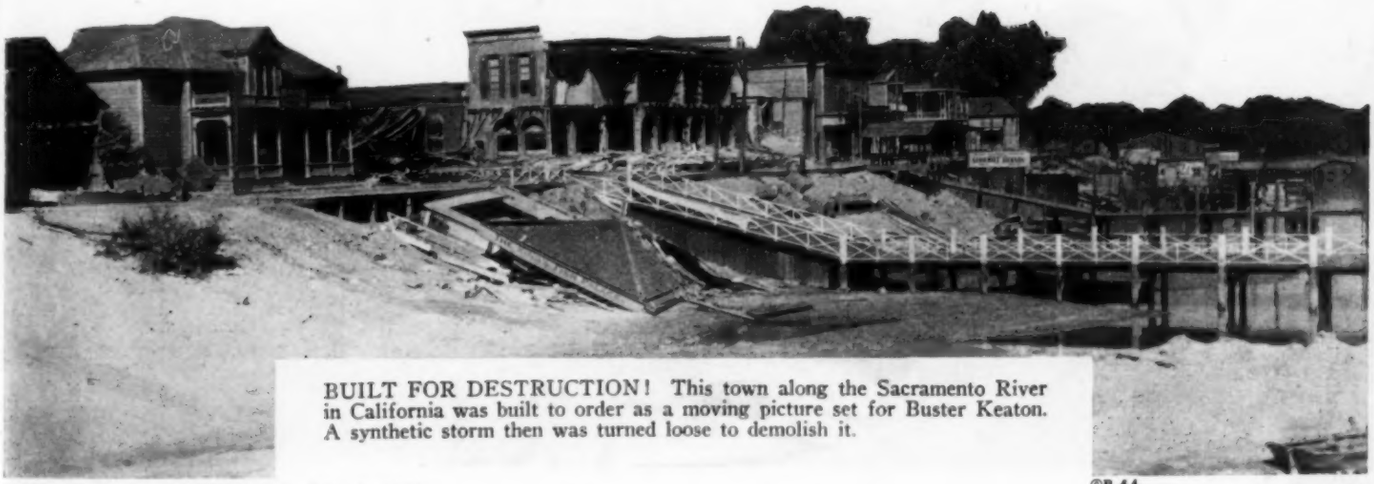


TUG O' WAR METHODS helped Williams & Douglass, Tacoma, Wash., contractors, get this Sullivan air compressor up a snow-covered slope in Glacier National Park for Trans-Mountain highway. Longfellow was right, they agreed, when he wrote:

"The heights by great men reached and kept
Were not attained
by sudden flight."

©U.&U

SKYSCRAPER-BRIDGE possibilities are suggested in this conception of Charles L. Morgan, Chicago architect.



BUILT FOR DESTRUCTION! This town along the Sacramento River in California was built to order as a moving picture set for Buster Keaton. A synthetic storm then was turned loose to demolish it.

©P.&A.

Floating Plant and 340-ft. Concreting

HORSE MESA

Salt River Valley Water Users' Association, Phoenix, Ariz., completes curved structure 305 ft. high, only 57 ft. thick at base and 8 ft. thick at coping for $5,000,000 power project.

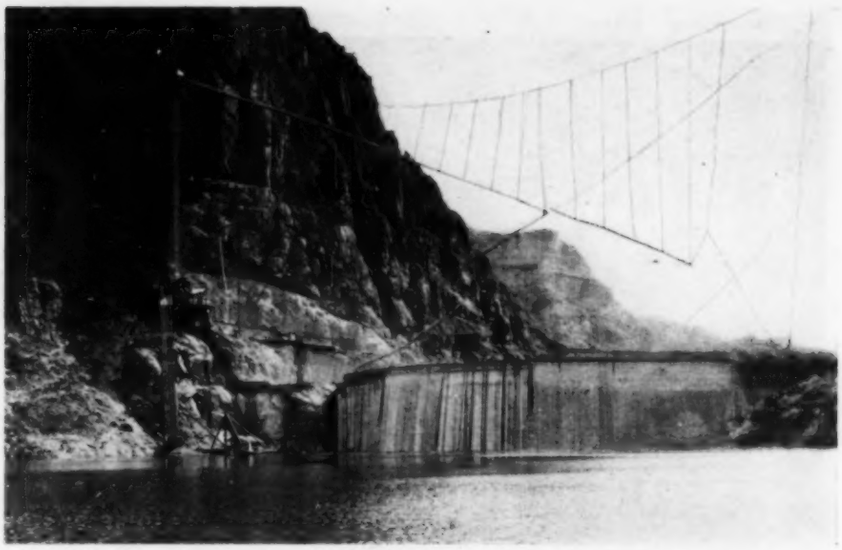
Picture Story by T. A. Hayden, Assistant Engineer, Salt River Project, Phoenix, Ariz.

EARLY CONSTRUCTION STAGE showing three 8-ft. steel penstocks, to serve three 15,000-hp. generators, ready for concreting. In pond behind cofferdam barge-mounted derrick with 2-yd. clamshell for dredging sand and gravel for concrete aggregate.

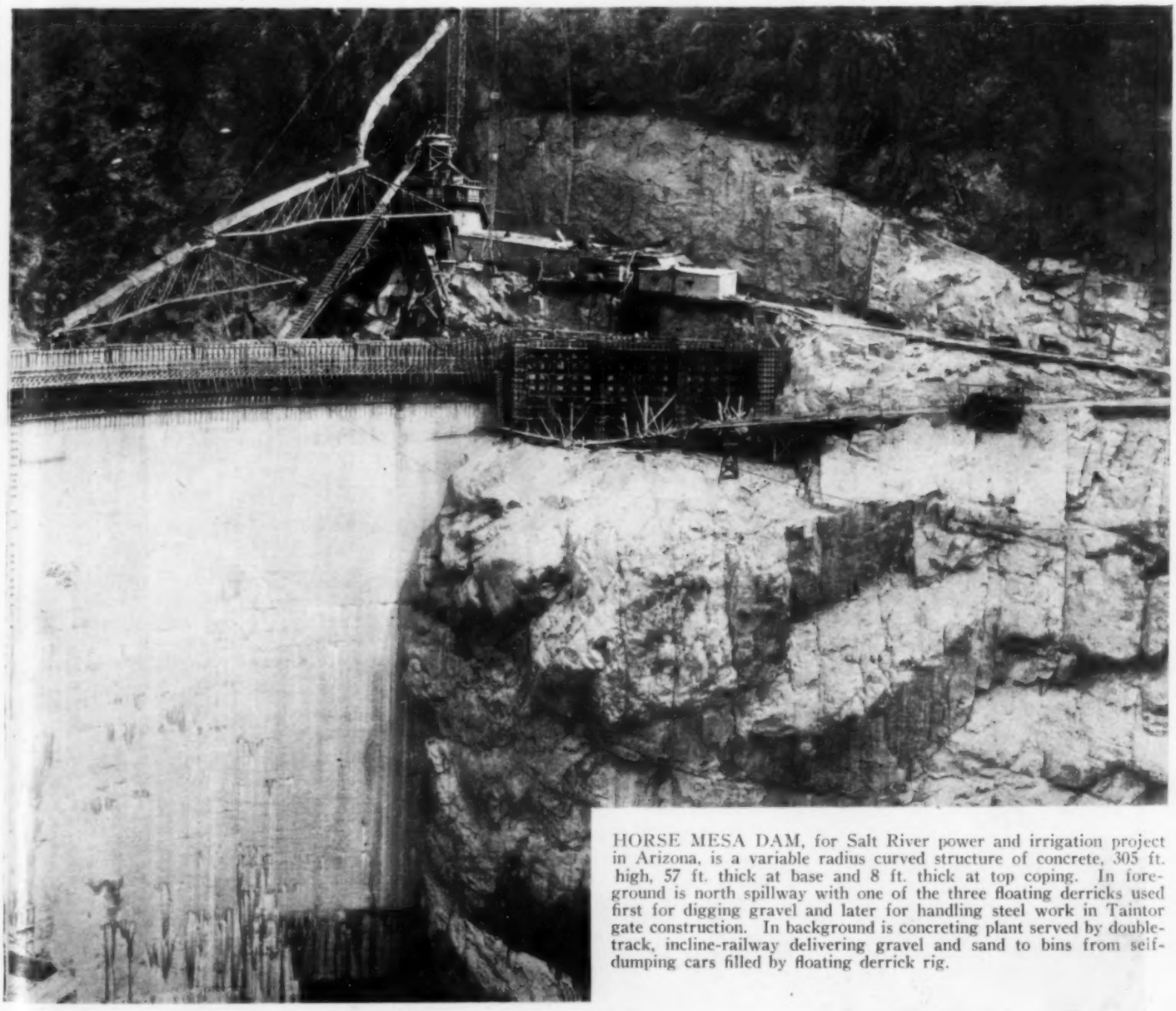
Tower Help Build

DAM

CONSTRUCTION FEATURES: Three floating derricks with 2-yd. clamshells in pond behind cofferdam handle sand and gravel from river bed for concrete aggregate. Double-track incline railway serves mixer plant 350 ft. above base of dam. One thousand feet of 20-in. chute carry wet concrete to place from 340-ft. tower with top 700 ft. above stream bed. Cement hauled 45 miles from Mesa by fleet of 25 5-ton trucks. All equipment electrically operated.



CONCRETING PLANT included 340-ft. Insley tower mounted on side of canyon, 1,000 ft. of 20-in. distributing chutes and a double-track railway at a steep incline. Self-dumping cars which rode up the inclined tracks to the mixer received dredged aggregate from floating derrick with 2-yd. clamshell bucket which unloaded scows into hopper.



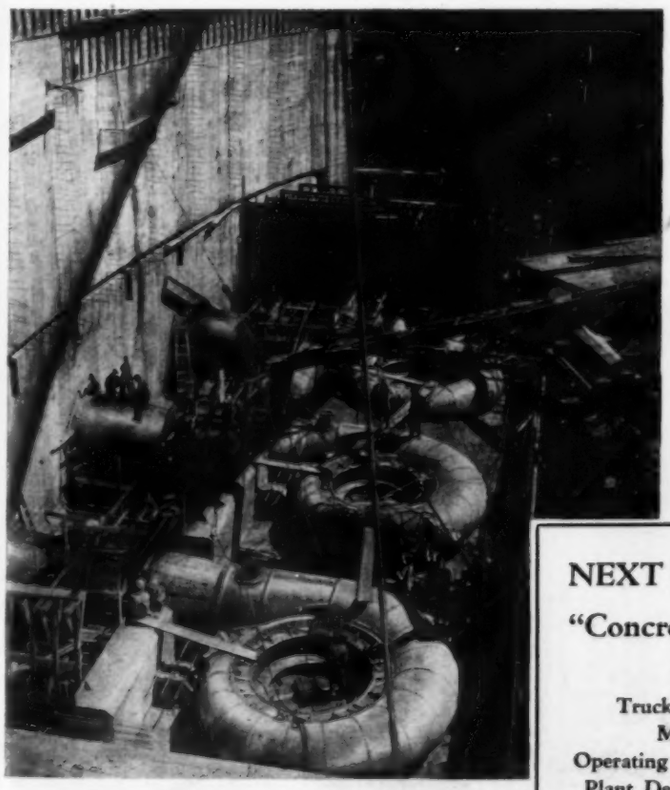
HORSE MESA DAM, for Salt River power and irrigation project in Arizona, is a variable radius curved structure of concrete, 305 ft. high, 57 ft. thick at base and 8 ft. thick at top coping. In foreground is north spillway with one of the three floating derricks used first for digging gravel and later for handling steel work in Taintor gate construction. In background is concreting plant served by double-track, incline-railway delivering gravel and sand to bins from self-dumping cars filled by floating derrick rig.

POURING THE FIRST CONCRETE. The mixture reached the base of the dam after descending in chutes from the mixing plant mounted far up on the side of the canyon.

FLOATING DERRICK, with 2-yd. clamshell unloading from scows, dredged gravel and sand for concrete aggregate. Bucket worked through 100 ft. of water at maximum stage of pond.

FORMS in place for the top coping. North spillway (at left) complete with Taintor gates being installed.

POWER HOUSE and north spillway ogee section (at left) poured to within 8 ft. of crest. At right 15-ton counterweights for Insley concrete chutes.

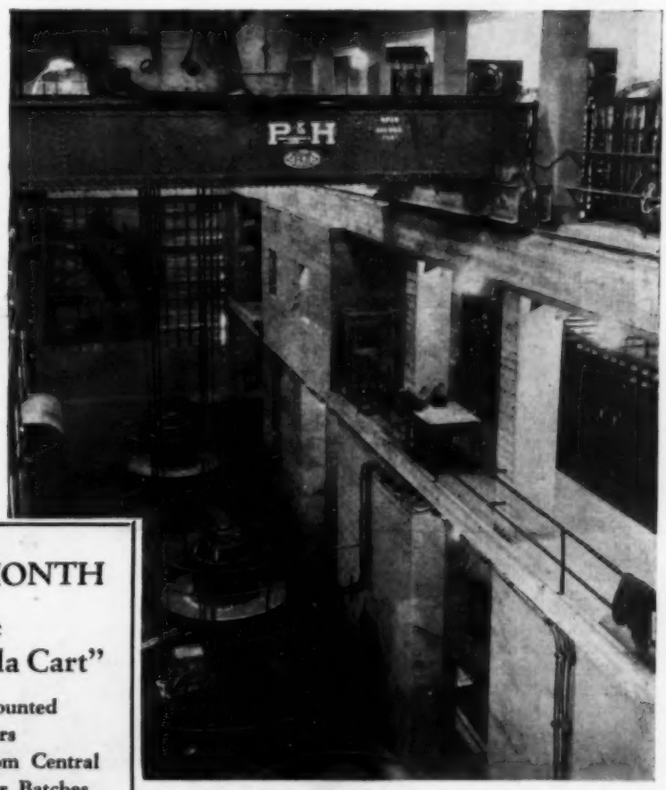


SCROLL CASES for three 15,000-hp. generator units ready for concreting, showing three 8-ft. penstocks at points where they emerge through the dam.

NEXT MONTH

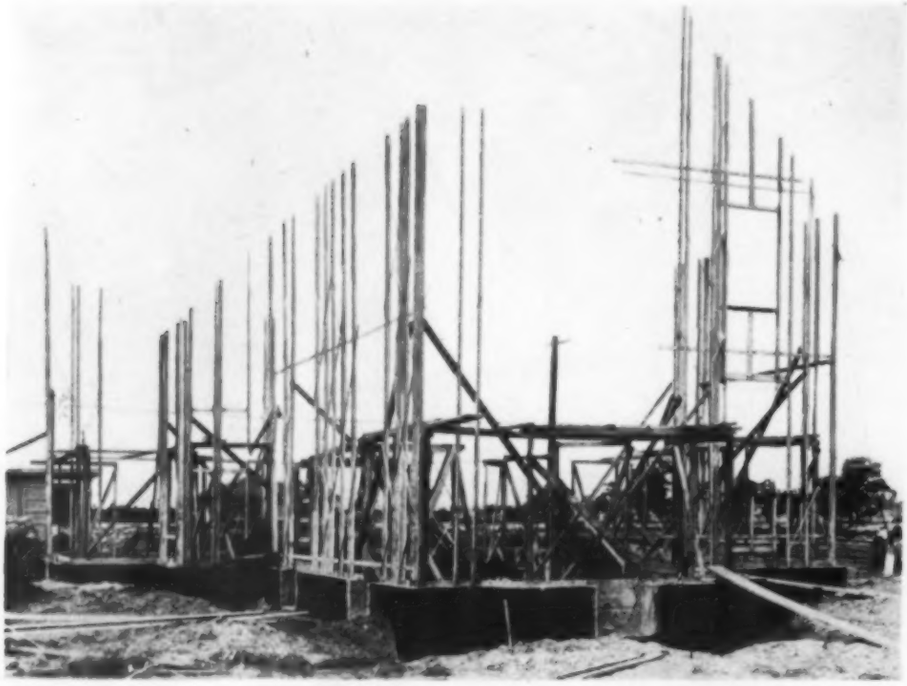
"Concrete á la Cart"

Truck-Mounted Mixers Operating from Central Plant Deliver Batches Ready for Contractors' Use



POWER HOUSE INTERIOR, showing assembly of generator units and heavy traveling crane for handling the machinery both for installation and maintenance and repair work.

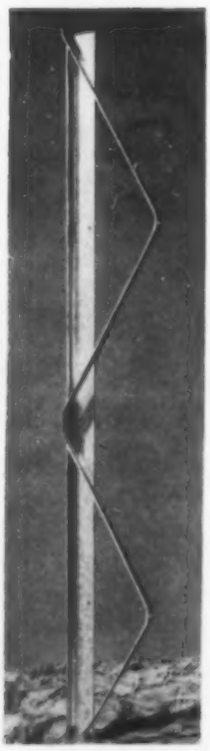
Not a Stick of Wood *in this* House



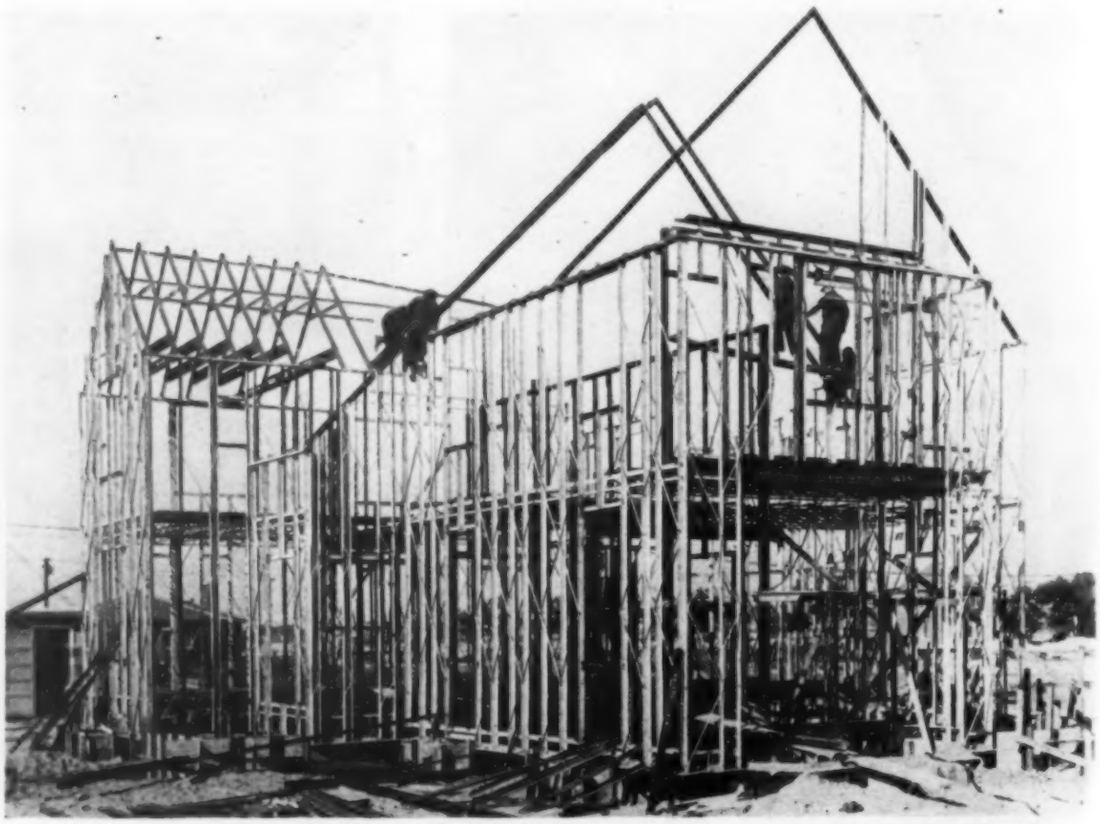
STEEL ERECTION STARTED, with sheared-edge angle iron members providing thorough diagonal bracing.

FOR the residence of Walter Bates, president of the Walter Bates Steel Corporation at Gary, Ind., the General Construction Company is completing a house 55½ ft. long by 45 ft. wide "without a stick of wood in it."

The design provides for specially braced all-steel construction using for the framework the same kind of angle-iron members, with sheared and expanded edges, as are used in the Bates type of electric transmission tower and pole construction. As shown in the photographs, strips sheared along the angle-iron edges (the cut extending not quite to the ends of the member in order to provide enough metal to hold the parts together) are utilized to provide an unusually complete system of diagonal bracing.



ANGLE IRON DETAIL, showing how sheared and expanded edge provides for bracing.



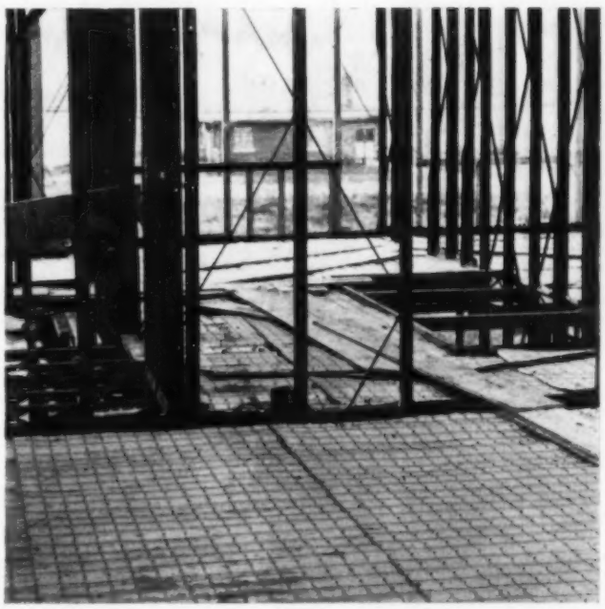
FRAMEWORK NEARLY COMPLETED, indicating application of system of diagonal bracing to stiffen structure.

All-steel construction employs sheared and expanded angle members for thorough crossbracing

In the concrete foundation, coated on the outside with waterproofing, bolts were cast to anchor the steelwork. For the most part, the steel framework was bolted together, although in some places electric welding was employed.

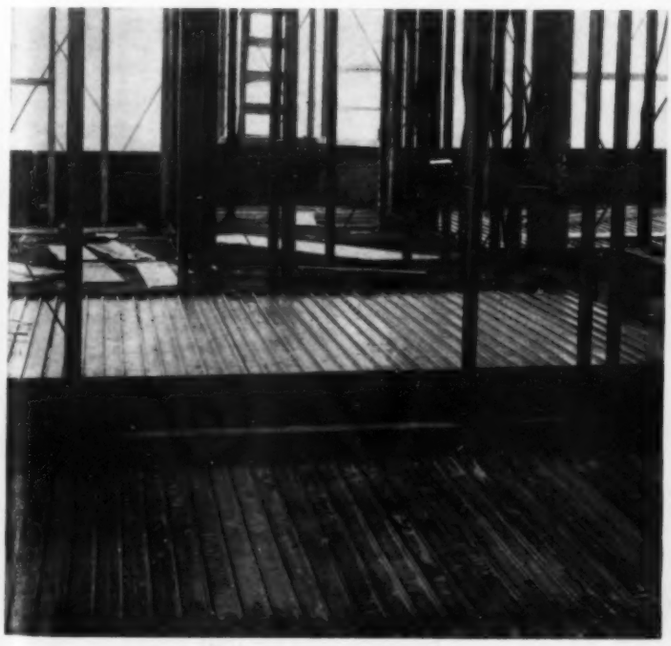
The floors of the house are of 2-in. concrete slabs, to which carpeting is directly applied without the use of any wood. The concrete floors, it is pointed out, are desirable not only from a sanitary and fireproof point of view, but also from the point of view of stiffening the structure. The floors are carried on Bates expanded steel floor joists, through which pipe and conduit may be run without cutting.

Carrying out the idea of all-metal construction, the stairs and window sash are all of steel.



ELECTRIC WELDING was employed in some places, although, for the most part, the connections were bolted. The welding outfit was mounted on a truck. Concrete for the second floor was delivered in wheelbarrows along inclined runway shown.

SECOND FLOOR with paper-backed Steeltex wire mesh reinforcement ready for pouring concrete. The waterproof paper backing, ½ in. below the steel fabric, acts as a form to hold the concrete for the 2-in. slab, with wire properly imbedded.



FIRST FLOOR was built with Holorib steel deck directly on top of Bates steel floor joists to provide smooth ceiling finish for basement without use of plastering. Interior partitions also are diagonally braced by sheared edges of angle irons.

FRONT HALL INTERIOR, showing steel stairs with concrete and tile treads. Near ceiling pipes and conduits are run through and carried by the steel floor joists.

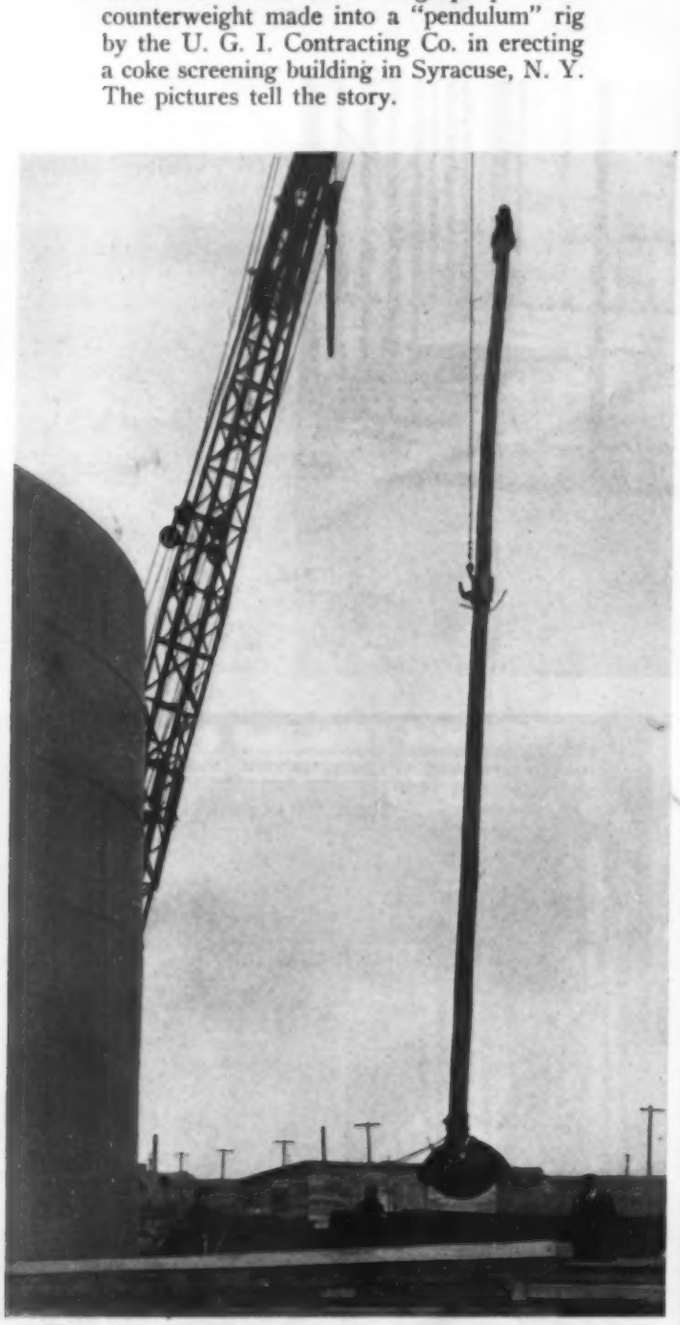
"Pendulum" Rig

Extends Crane Boom Reach

THE PROBLEM: To set a roof truss 103 ft. above ground with a locomotive crane having a 60-ft. boom which, even with a 25-ft. temporary extension, was still about 20 ft. too short.

THE SOLUTION: A telegraph pole and counterweight made into a "pendulum" rig by the U. G. I. Contracting Co. in erecting a coke screening building in Syracuse, N. Y. The pictures tell the story.

ROOF TRUSS is lashed to end of pendulum rig for raising.



TELEGRAPH POLE, counterweighted with 24-in. cast iron elbow, is hung from crane boom by single-line hitch taken slightly above center of pole.

EXTRA LIFT needed to place the truss beyond the reach of the crane boom proper is easily secured by the ingenious "pendulum" extension rig. "The rig worked surprisingly well," says H. B. Bacon, field supervising engineer for the U.G.I. Contracting Co., "as it permitted considerable 'drift' and set the trusses with no trouble at all."

Back-Digger Plays Solo Part

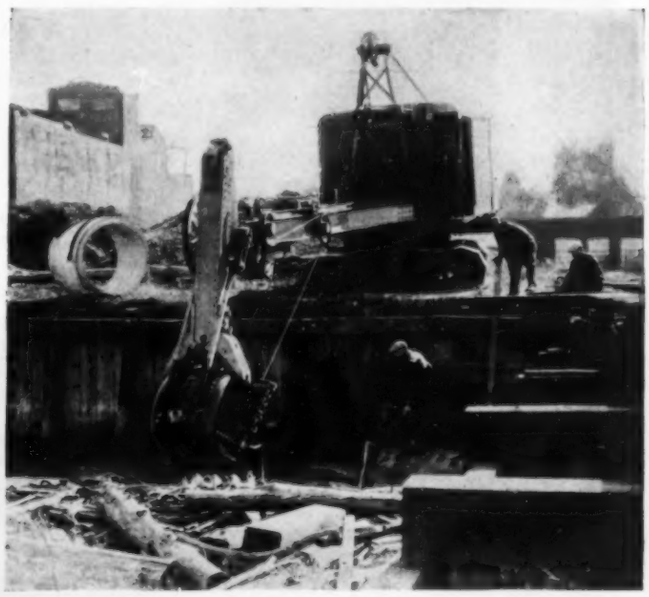
on Submarine Pipe Job

WITHOUT the aid of other mechanical equipment, a Thew back-digger succeeded in completing in three weeks the job of excavating an underwater trench and placing 512 ft. of 48-in. concrete pipe for a condenser water intake at the Edgewater plant of the Ohio Public Service Company on Lake Erie at Lorain, Ohio. The new line replaces an open channel which, during winter, often became clogged with needle ice.

Trifiletti Bros., the contractors, operated the back-digger from a dock along the intake channel. With a digging reach of 38 ft. the machine first dredged out a section long enough for two 4-ft. lengths of pipe, then picked up the pipe sections with a pipe hook and lowered them to place, where the joints were cemented. The digger then backfilled the completed work.

On this job the machine used an average of 25 gal. of gasoline and 1½ quarts of lubricating oil per day.

CHARLES R. DITTRICK did the diving on the submarine pipe job.



THE BACK-DIGGER, with tilting bucket, having a 38-ft. reach, dredged the trench for the pipe line from a dock along the old channel.

WITH A PIPE HOOK and chain sling from the digging bucket, the machine set the 1,900-lb. sections of 4-ft. concrete conduit.

THE COMPLETED LINE will eliminate trouble from needle ice which choked the old open intake channel serving the power plant.

NEW EQUIPMENT ON THE JOB

Clay Balls Ejected by Gravel Washer

In the Telsmith-Ajax gravel washer, marketed by the Smith Engineering Works of Milwaukee, Wis., the manufacturers claim to have found a solution to the gravel producer's biggest problem, getting rid of extraneous matter, particularly clay. Retainer rings

which retard the progress of the large rock produce an action in the scrubber similar to that in a ball mill, effectively grinding up the clay balls into paste, which is soon washed out.

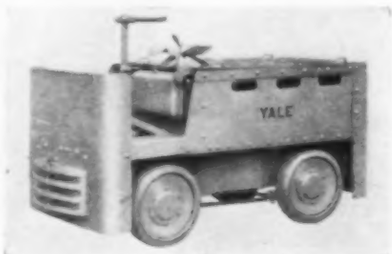
Air Gun Sprays Hot Tar 200 Ft.

The Quigley Bitumen Gun, newly adapted by the Quigley Furnace Specialties Company of New York

City, for use in the construction field, is unique in that it shoots liquids of practically any consistency or temperature for distances up to 200 ft. from the nozzle. It consists of a cast iron cylinder from which the material is forced by a piston giving high pressure, and is equally adaptable for applying hot asphalt, tar, or pitch, or paint, whitewash, and similar cold liquids.

Electric Tractor Has 4-Wheel Drive

Power on all four driving wheels, giving an ultimate draw bar pull of more than 4,000 lb. and a continuous pull of 1,000 lb. without overheating, is the outstanding feature of the new Yale model K24C electric tractor marketed by the Yale & Towne Manufacturing Company of Stamford, Conn. Driven by two standard units connected



in parallel at the controller, and equipped with 4-wheel brakes, it has a safety device which instantly applies brakes and stops the motor in case of need. It is designed for heavy duty around industrial plants.

The brake foot pedal has been made very large, so that it is possible to comfortably rest both feet on this pedal. The pedal lies flush with the wooden flooring of the tractor. By a suitable arrangement of toggle joints, the pressure required to start the pedal in the release or downward direction, is greater than that which is required to hold the pedal down once it has been depressed.

Heltzel Form Made Stronger and Heavier

Heavier and stronger, designed to meet the weight and thrust of giant road machinery, the new Heltzel "1930" steel road form is called by its manufacturers, the Heltzel Steel Form & Iron Company, of Warren, O., the most efficient and rigid form ever built. General design unchanged, the new form is made of $\frac{3}{16}$-in. special steel

plate with double reinforcing flanges and 6-in. base. Giant 1-in. steel stakes hold the forms in line, and the joint locking device not only locks the form, but automatically aligns the rail ends and makes deflection practically impossible.

No Backfire With Improved Blowpipe

A new cutting blowpipe, known as type C-14, which, the makers claim, will not backfire even under the most

severe operating conditions, is announced by the Oxweld Acetylene Company of New York City. Several improvements in design have been made, giving increased durability with less weight; and interchangeable nozzles enable use of either medium or low pressure acetylene.

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Published monthly.

An Improvement Which Lowers Costs

THE Tiltable Dipper on the new Thew Back-Digger now makes it possible for the operator to control the angle of the dipper at all times. Five new Back-Digger advantages — chief of which is the ability to hold the load until spotted over spoil-pile or truck, then dump quickly and cleanly — mean lowered costs, new jobs and new profits.

The new Thew Back-Digger can be quickly and easily attached to any Lorain 60 or 75 machine in the field.

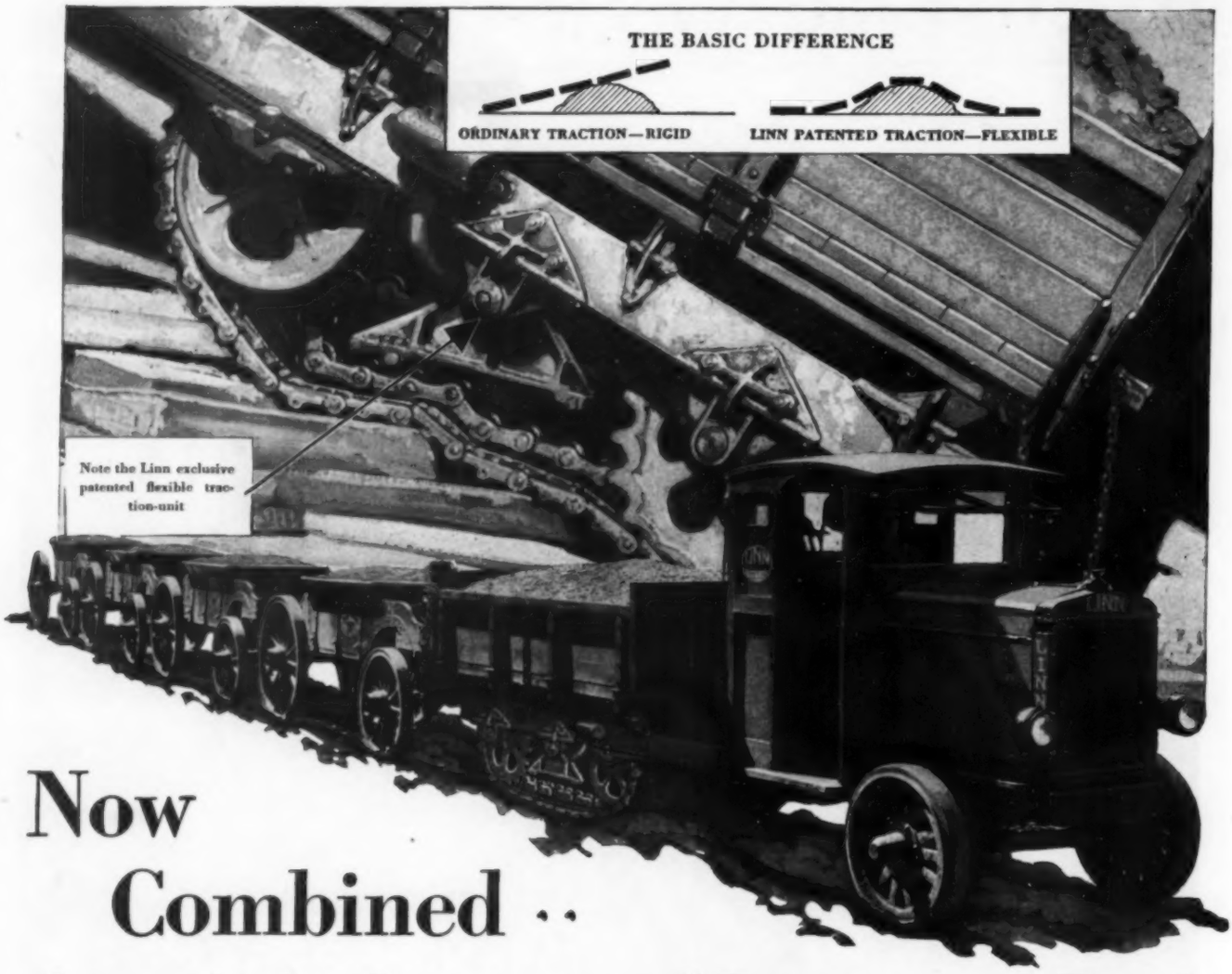
THE THEW SHOVEL COMPANY
LORAIN, OHIO

THEW

LORAIN 60 AND 75

Gasoline or Electric Powered

Crawler Cranes, Draglines, Back-Diggers



Now Combined ..

these vital advantages of Tractor and Truck

The powerful pull of a powerful tractor—the load-carrying ability, ease of operation and safety of the heavy motor truck—you find them all combined in a single revolutionary machine, the Linn Tractor.

Basically different from truck or tractor in many ways, the Linn literally brings a new era in heavy hauling, lumbering, road-building, snow removal, construction, oil and mining operations.

The Linn grips uneven surfaces—by means of its exclusive *flexible traction* unit. Tows a whole train of loaded trailers, carrying its own pay load. Steers with ordinary steering wheel; any truck driver can operate it. Offers full power on sharp turns. And its sturdy manganese steel traction members *cannot clog*.

The Republic Line of Motorized Transportation includes, in addition to the Linn Tractor, 4 and 6-cylinder trucks from 1½ to 5-ton capacity. Standard and special bodies for every trucking purpose

Two models—a six-cylinder, 100 H. P. type, a four-cylinder, 75 H.P. type. Either can be fitted with any type of body and trailer equipment required. Let us send you performance pictures and complete information about the Linn. Let us explain how its savings match its amazing operation. Write us.

REPUBLIC MOTOR TRUCK CO., INC., *Alma, Michigan*

Factories
Alma, Mich., and Morris, N. Y.

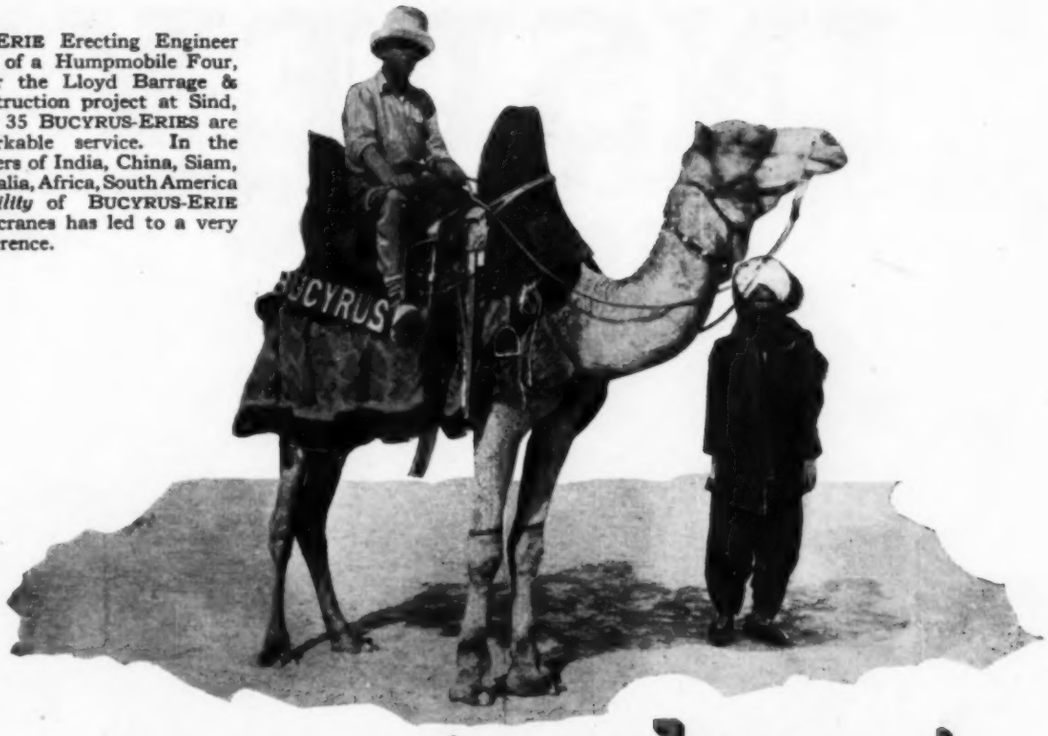
Factory Branches
New York: 32-37 Queens Blvd., Long Island City
Chicago, Philadelphia, Detroit, St. Louis, Baltimore, Pittsburgh, Los Angeles, San Francisco, St. Paul-Minneapolis, Portland, Ore., Charlotte, N. C.

LINN
REPUBLIC
TRACTORS-TRUCKS

105 direct distributors located throughout the United States and 49 distributors located in 30 foreign countries

Canadian Linn Distributors: Mussens, Ltd., Montreal

BUCYRUS-ERIE Erecting Engineer at the wheel of a Humpmobile Four, "all set" for the Lloyd Barrage & Canals Construction project at Sind, India, where 35 BUCYRUS-ERIES are giving remarkable service. In the farthest corners of India, China, Siam, Russia, Australia, Africa, South America — the *reliability* of BUCYRUS-ERIE shovels and cranes has led to a very natural preference.



Does your shovel meet the "Camel-back" test?

Maybe you have never worked a shovel at the far side of a desert— where any repair parts would have to be carried "camel-back." If you did, you'd certainly be careful to pick a reliable shovel for that job!

But why not choose just as carefully for *every* shovel job? Even if your work is right smack up alongside of a railroad, extra repairs mean added cost— and what's far more expensive than the parts, *lost time.*

In any location, the shovel or crane you can depend on to Stand Up and Produce is the profitable machine to use.

Which explains why BUCYRUS-ERIE shovels and cranes are leaders in the faraway places, as well as throughout the U.S.A.

These machines are built with *Reliability* as the first consideration. Simple design, extra rugged construction, with plenty of the right steels where extra strength counts most— assuring you a machine that does a bigger day's work and *gets the work done.*

BUCYRUS-ERIE COMPANY
South Milwaukee, Wis. Erie, Pa.
Evansville, Ind.
Branch Offices and Representatives Everywhere

BUCYRUS ERIE

"BUCYRUS" and "ERIE."— each the most successful manufacturer in its particular field— consolidated Jan. 1, 1928. The unmatched resources of BUCYRUS-ERIE assure the buyer of Unequalled Value, More Efficient Machines, Permanence of the Manufacturer, and a More Complete Field Service.

INSLEY

SHOVEL — Ditcher — Skimmer — Dragline — CRANE

"THAT SOUNDS LIKE SENSE TO ME"

"I CAN buy an Insley for half what it would cost me to buy a big outfit, and I know I couldn't get a better piece of machinery if I paid three times as much as an Insley would cost me. I can get three or four hundred yards a day out of it and can do any kind of work there is to be done.

"And I can make more money on my grading, side ditching and unloading with my Insley than with anything else I know of and that's what counts these days.

"There's no use talking, I'm better off with one or two Insleys than I am with anything else, and I'm no different from any other fellow who wants to stay in business."

604

INSLEY MANUFACTURING COMPANY - Indianapolis

Engineers and Manufacturers

"HERCULES" RED-STRAND

REG. U.S. PAT. OFF.

WIRE ROPE

Let Results Be Your Guide

WIRE Rope economy depends on final results rather than on first cost, and it is on this basis that "HERCULES" (Red-Strand) Wire Rope is able to save you money.

The performance record of this wire rope is its best advertisement, for it has shown that it is able to give a big dollar's worth of service for each dollar of its cost.

If you want better wire rope results on your heavy duty material-handling equipment, give "HERCULES" a chance to show you what it can do. It is made in both the Round Strand and the Patent Flattened Strand constructions in order to meet all conditions.

Made of acid open-hearth steel wire.

Made Only By

A. Leschen & Sons Rope Co.

Established 1857

5909 Kennerly Avenue
ST. LOUIS

New York Chicago Denver San Francisco

Again...LOWER PRICES

for "Caterpillar" Tractors

...again the Caterpillar Tractor Co. passes on to purchasers the benefits of increased sales and consequent production economies. . . . Again it announces reductions in the prices of all sizes of the "Caterpillar" Tractor.

PRICES on Snow Special, Logging Cruiser and other special models bear similar reductions . . . . . .

NEW REDUCED PRICES

Effective January 27, 1928

SIXTY	THIRTY	TWENTY	2-TON
$4600	**$2650**	**$2175**	**$1675**
F. O. B. Peoria or San Leandro	F. O. B. Peoria or San Leandro	F. O. B. Peoria or San Leandro	F. O. B. Peoria

There is a "Caterpillar" Dealer near you.

CATERPILLAR TRACTOR CO.

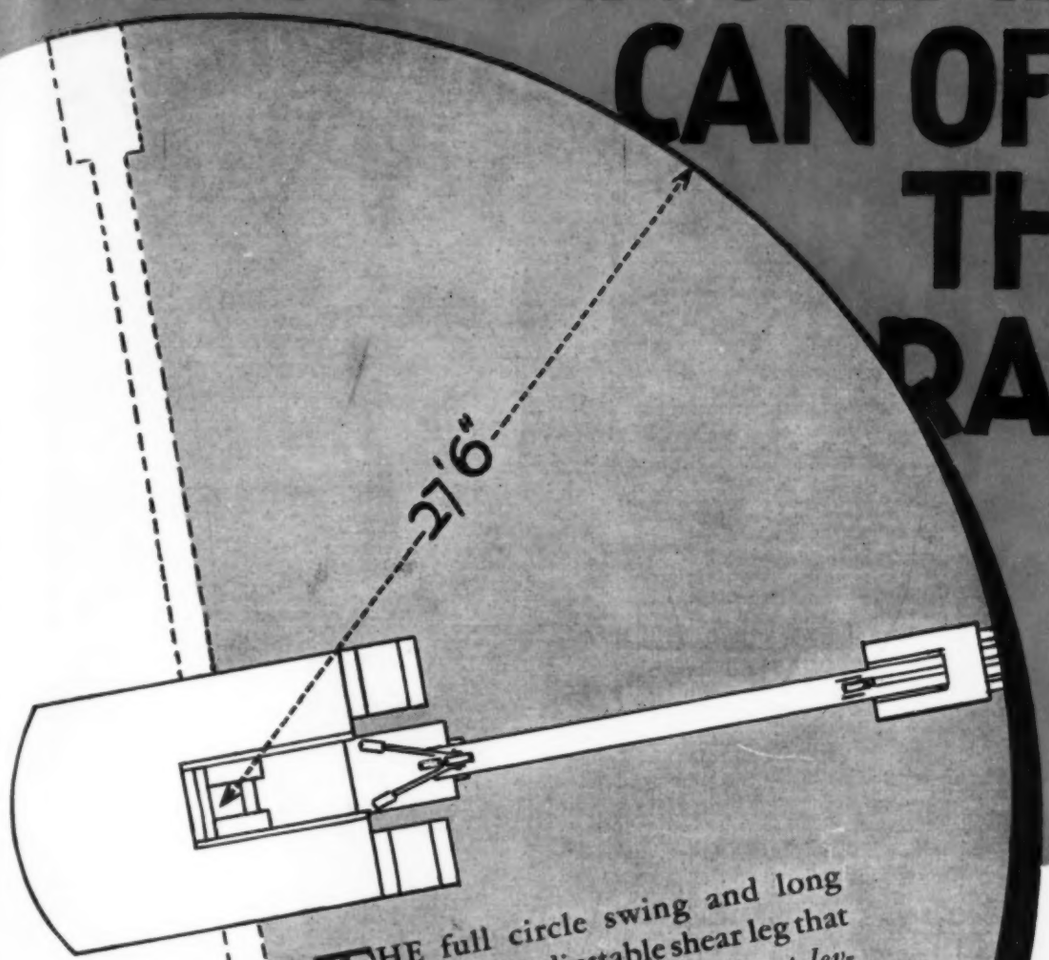
Executive Offices: San Leandro, California, U. S. A.
Sales Offices and Factories:
Peoria, Illinois San Leandro, California
Distributing Warehouse: Albany, N. Y.
New York Office: 50 Church Street

Successor to

BEST (C. L. Best Tractor Co.) (The Holt Manufacturing Company) HOLT

CATERPILLAR
REG. U.S. PAT. OFF.

NO OTHER SKIMMER CAN OFFER THIS RADIUS!



THE full circle swing and long boom, the adjustable shear leg that permits *cutting grade at different levels with a flat boom,* and the fact that it can be converted to a pull-shovel without even changing booms. This means a skimmer scoop with a versatility never before possible. Ask about it.

Model 3

Model 2

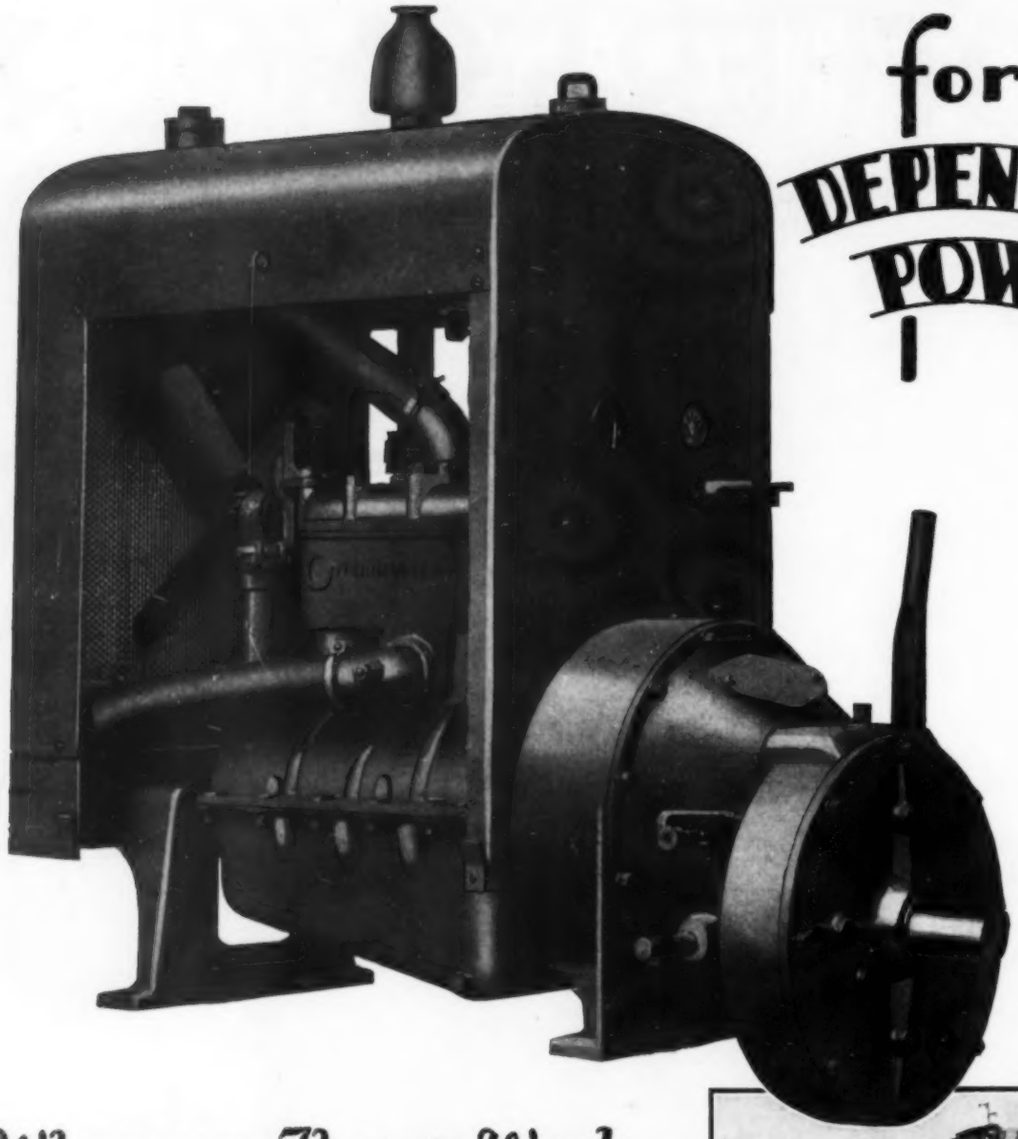
NORTHWEST ENGINEERING COMPANY

The world's largest exclusive builders of gasoline and electric powered shovels, cranes and draglines

1723 Steger Bldg. 28 E. Jackson Blvd.
Chicago, Ill., U. S. A.

CM3-Gray

NORTHWEST

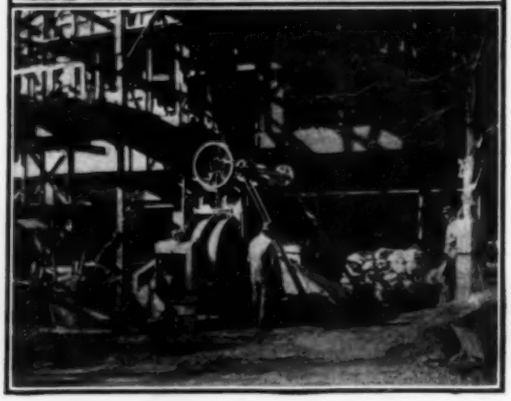


for DEPENDABLE POWER

Wherever There's Work

—you invariably find the Le Roi Engine on the job. Whether it's keeping the mixer drum humming or a saw rig buzzing — it gives the same dependable, low-cost power.

To distinguish itself in its field — Le Roi boasts of an unparalleled record — the lowest operating cost per day and year. Look to Le Roi for dependable power.

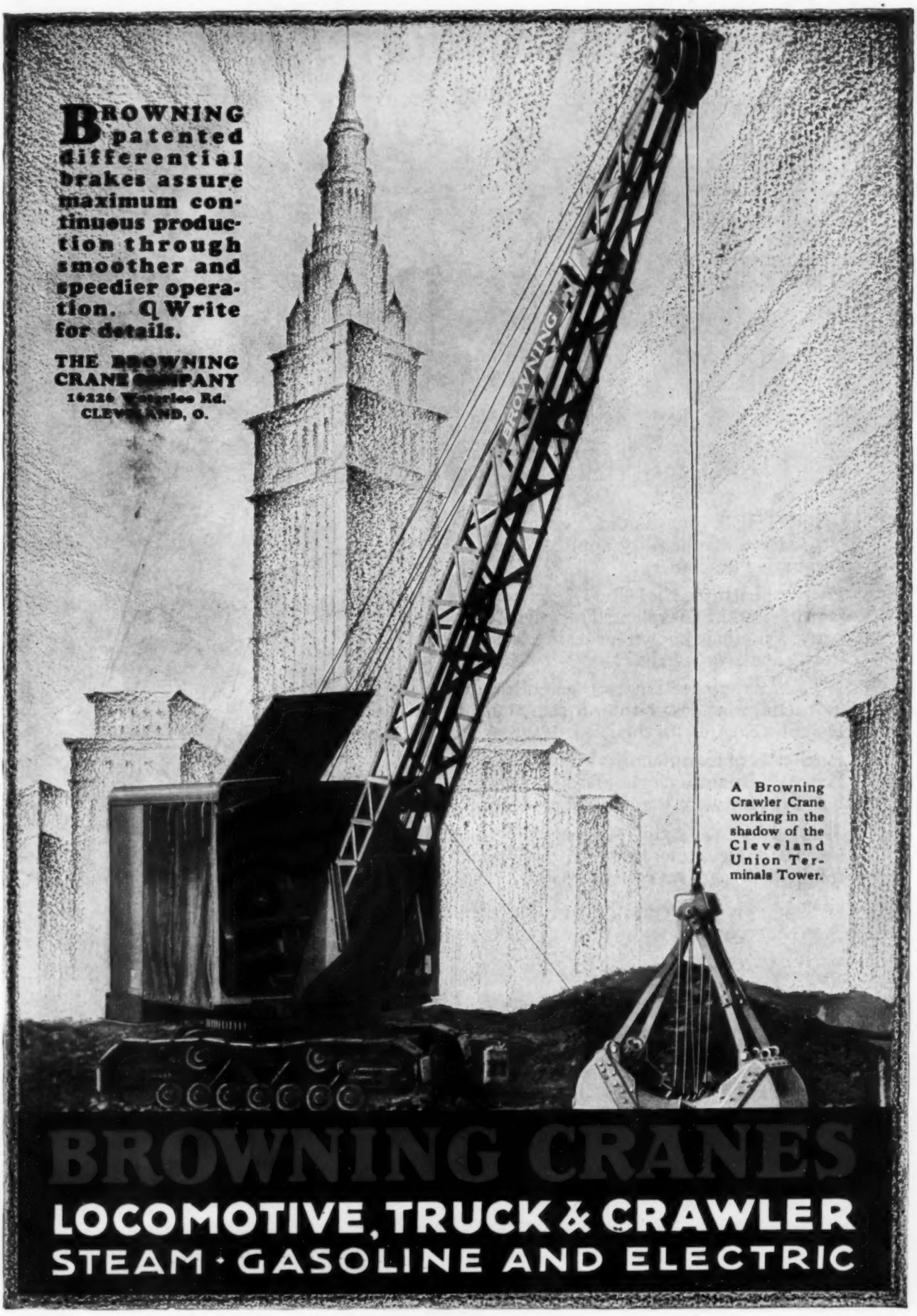


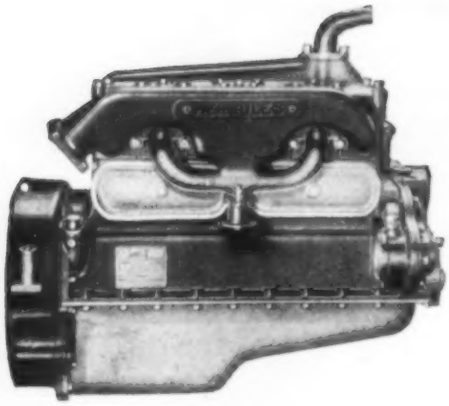
LE ROI COMPANY

Milwaukee, Wis.

LE ROI ENGINES

3 *to* 160 HORSE POWER


BROWNING
BROWNING patented differential brakes assure maximum continuous production through smoother and speedier operation. ¶ Write for details.
THE BROWNING CRANE COMPANY
16226 Waterloo Rd.
CLEVELAND, O.
A Browning Crawler Crane working in the shadow of the Cleveland Union Terminals Tower.
BROWNING CRANES
LOCOMOTIVE, TRUCK & CRAWLER
STEAM · GASOLINE AND ELECTRIC



Hercules

ENGINES

ANOTHER outstanding example of Hercules reliability applied to power excavating machinery.

Here is illustrated the Baby Digger, manufactured by the Cleveland Trencher Company, a product known for its mechanical excellence everywhere.

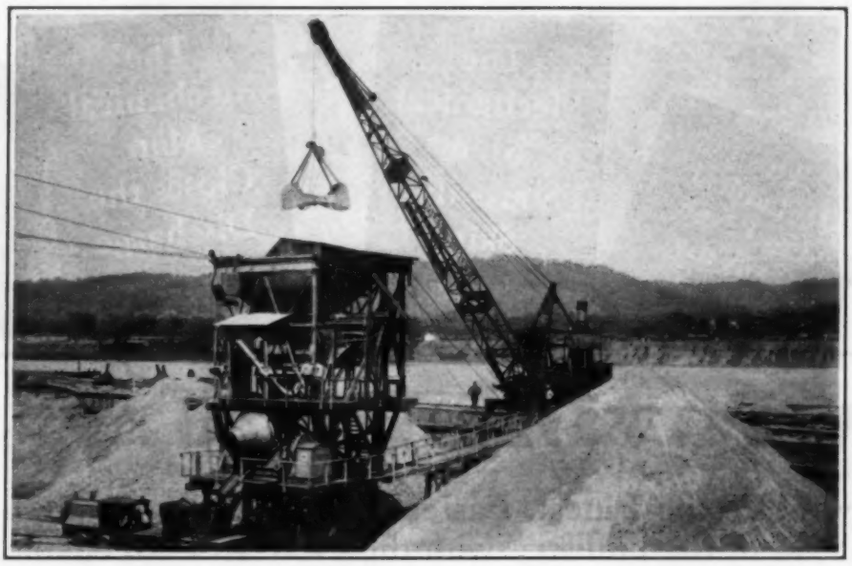
No greater protection can be built into industrial machinery than a selection of Hercules Engines for their source of power.

Hundreds of manufacturers have selected Hercules Engines as standard equipment because they want the greatest protection.

This is why Cleveland Trencher Company selected Hercules as standard equipment for their diggers several years ago.

HERCULES MOTORS CORPORATION
CANTON, OHIO, U. S. A.

Desk Demonstrating — —



To help you profit from the experience of others; to aid you in understanding why the *Wiley-Whirley* presents a wholly new idea in modern construction; we conceived the new, unique *Wiley-Whirley* catalog.

Here, while sitting at your desk, you see portrayed remarkable demonstrations of an unusual machine.

For the *Wiley-Whirley* has been on the job since 1919. It has proved our claims for its strength, simplicity, speed and accessibility; for continuous operation with little or no repair expense.

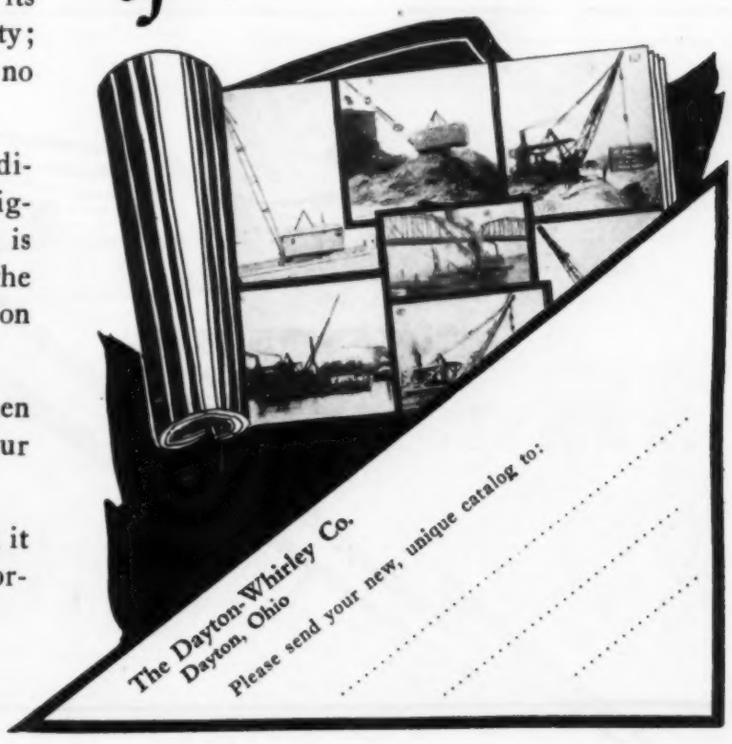
Now the new *Wiley-Whirley,* the embodiment of modern engineering applied to digging machinery and power transmission, is regarded by owners and operators as the most outstanding piece of construction equipment developed in recent years.

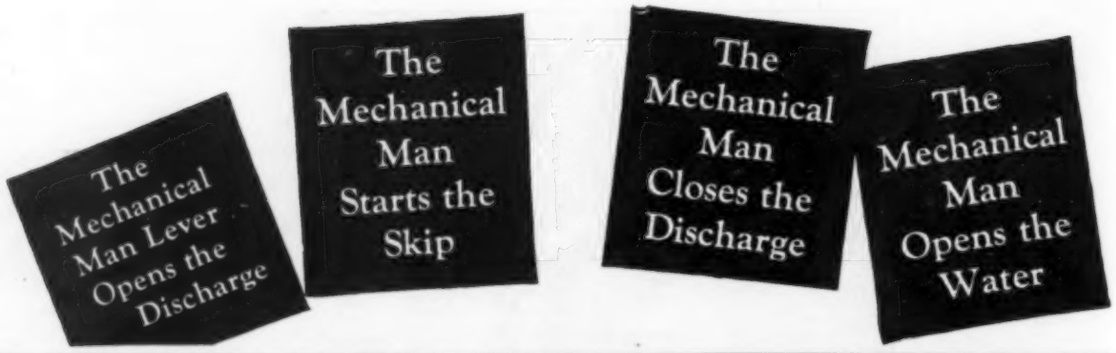
The demand for the new catalog has been heavy. The comments gratifying. For your information you should have a copy!

The coupon is for your convenience. Fill it in and drop it in the mail before you forget it.

The Dayton-Whirley Co.
DAYTON, OHIO

Send for Your Copy of this Novel Catalog




The Mechanical Man Lever Opens the Discharge
The Mechanical Man Starts the Skip
The Mechanical Man Closes the Discharge
The Mechanical Man Opens the Water

New Paving History, New

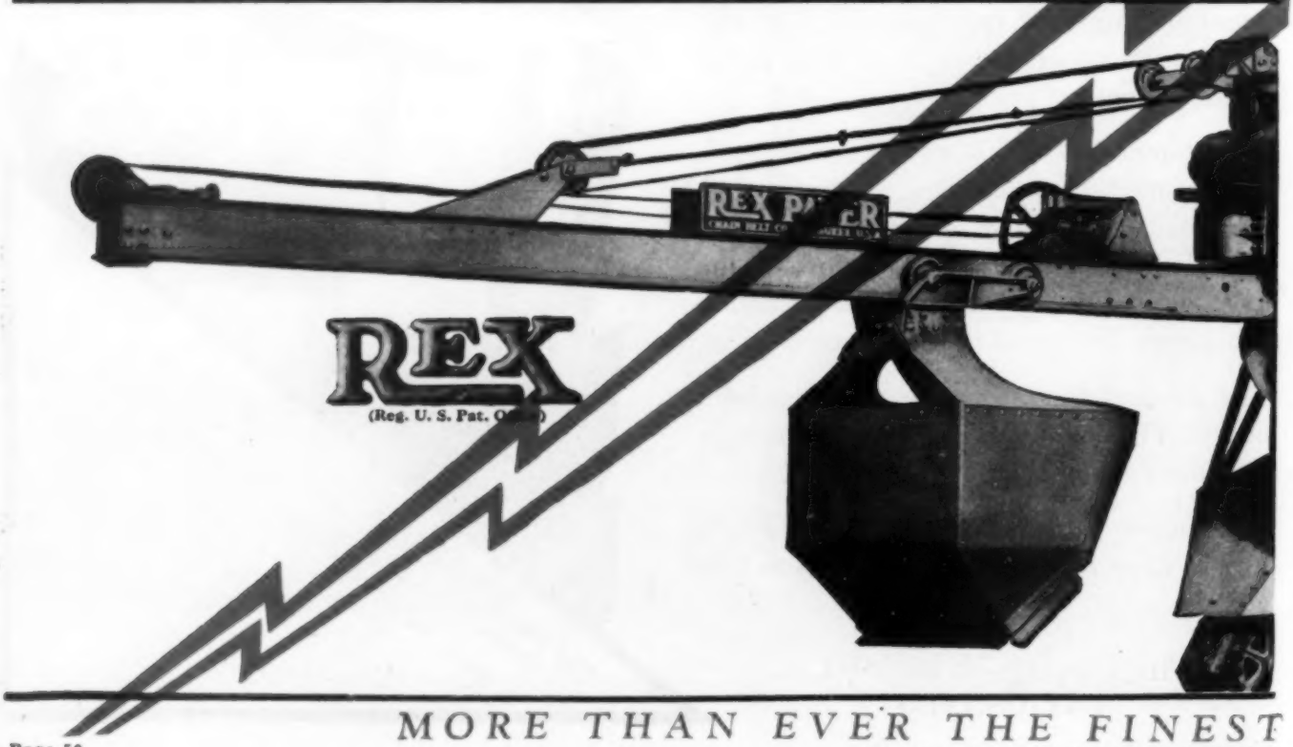
For 1928 the Finest, Fastest Paver ever built jumps still farther ahead of the industry with the New Rex Mechanical Man (one-lever control).

The Mechanical Man provides automatically the fastest mixing cycle in paving history—by completely eliminating the human element.

The Mechanical Man clips enough seconds from each batch to give the contractor 40 more mixing minutes per day—an actual fact proven by stop watch studies of actual jobs.

The Mechanical Man ends the dumping of batches outside the

CHAIN BELT COMPANY



MORE THAN EVER THE FINEST

making

The Mechanical Man Closes the Water

Profits—The Mechanical Man

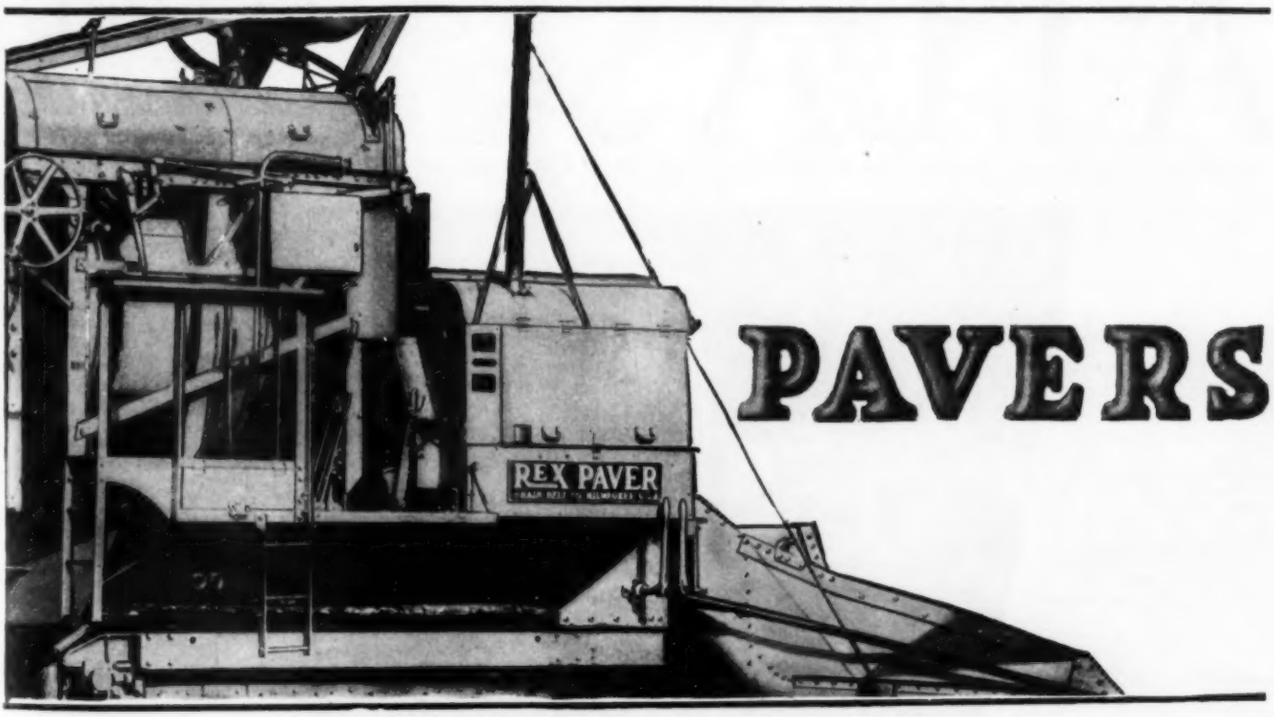
forms. Turning water on and off automatically it makes all batches uniform.

The Mechanical Man makes the operator's job easier, by reducing his mixing work to one pull of one lever.

And because of these things the Mechanical Man makes new paving profits possible for the contractor—profits that can easily amount to between $30 and $50 per day.

That's something to think about, as sending for the 1928 Rex Paver Catalog will prove.

764 PARK STREET, MILWAUKEE, WISCONSIN



PAVERS

FASTEST PAVER EVER BUILT

DEPENDABILITY *and* PERMANENCE . . *The True Measure of Quality in Portland Cement*

IN New York City, the Bush Terminal Building, constructed in 1916. Ten years later, in Coral Gables, Florida, the Miami-Biltmore Hotel and Country Club. Both built by the same general contractors, Thompson Starrett Co. Both built with Atlas Portland Cement. ¶More than coincidence, here is significance and suggestion for every contractor; cumulative evidence that Atlas possesses in high degree that *dependability* and *permanence* which are the true measure of quality in portland cement. ¶For great structures and small, the growing choice of Atlas advises with increasing emphasis its wider specification and use. For sign-post or silo, for culvert or column, for stucco house or skyscraper—Atlas, "The standard by which all other makes are measured."

Among its many friends the country over, Atlas is proud to count contractors who year in and year out, over a long period, have built great structures for others and increasing good-will for themselves with Atlas. That prospective builders may the more readily approve the contractor's selection of Atlas quality is one of the prime purposes of the current national advertising campaign. May we suggest that you watch for the full-color advertisements in the great national magazines. The Atlas Portland Cement Company, 25 Broadway, New York.

ATLAS PORTLAND CEMENT GRAY & WHITE

Main Offices: New York ··· St. Louis

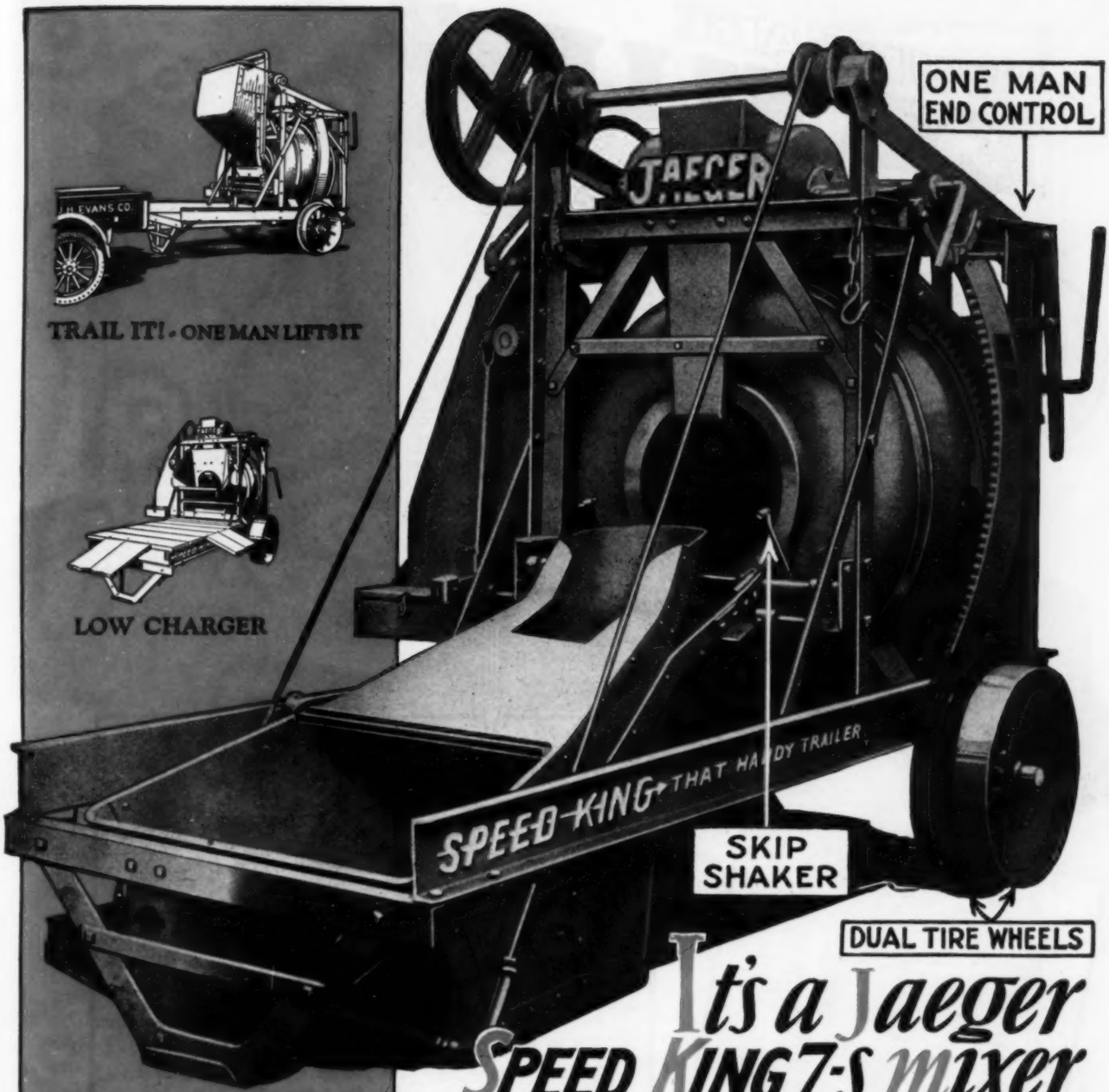
NEW YORK · ST. LOUIS · CHICAGO · BIRMINGHAM · KANSAS CITY · PHILADELPHIA · BOSTON · DES MOINES · OMAHA · ALBANY · JACKSONVILLE, FLA.

It is June all winter at the Miami-Biltmore Hotel and Country Club (above), Coral Gables, Fla., built in 1926. The Bush Terminal Building (below) built in 1916, is a Gothic, thirty-five story showroom of merchandise. For both, Atlas Portland Cement was used.

For special speed in construction and early use of completed work, The Atlas Portland Cement Company offers Atlas LUMNITE Cement, through an arrangement with its affiliated company, The Atlas Lumnite Cement Co. Lumnite is not portland cement. In 24 hours it produces concrete which exceeds in strength the 28-day concrete of portland cement.

TRAIL IT! - ONE MAN LIFTS IT

LOW CHARGER



It's a Jaeger SPEED KING 7-S mixer

This compact, big one-bag mixer, in the end discharge, all-purpose type, is making records everywhere. It's portable, mounted on springs and with dual tires that work on soft ground as well as paved streets. Equipped with Accurate Measure Water Tank, Skip Shaker, 100% Roller Bearing and built for *speed*.

Save about $200 on this machine over ordinary mixers!

HEAVY DUTY MIXERS - 7 to 28 ft. Sizes!

$179.50 NET CASH FACTORY BUYS this HALF-BAG TRAILER!

JAEGER TILTERS with LOADERS - 2½-5-7-10-14 ft. Sizes

THE JAEGER MACHINE CO. 800 DUBLIN AVE. COLUMBUS, OHIO

Branches and Service in Over 100 Cities

Mail This Slip Today for Prices and Terms

THE JAEGER MACHINE CO.,
800 Dublin Ave., Columbus, Ohio *Date* _____

Please send catalog, prices and terms on

☐ Non-Tilt Mixers
☐ Plaster Mixer
☐ Tilting Mixers

Name _____

Address _____

_____

"THEY ARE EXCELLENT LOCOMOTIVES"

WOODS Brothers Construction Company, Lincoln, Nebraska, now building the Starved Rock Lock and Dam for the canalization of the Illinois River between Joliet, and Utica, Illinois, made this statement of their Plymouths while working them all, twenty hours per day.

Three eight-ton Plymouths hauled 900 yards of concrete per day. The haul is 1200 feet and they use 3 trains of 3 cars each. An interesting feature here also is the moving of the 130 ton steel lock wall forms with the Plymouths. These forms run on rails and are moved 60 feet each time—this is accomplished in 30 minutes

"We are showing them plenty of hard work, and they have never failed to respond," says Mr. George K. Leonard, General Superintendent of this important piece of construction.

From where the jobs are the hardest, comes the strongest praise of Plymouth performance.

PLYMOUTH LOCOMOTIVE WORKS
The Fate-Root-Heath Company
PLYMOUTH, OHIO

WOODS BROS. CONSTRUCTION CO.
ENGINEERS AND CONTRACTORS
LINCOLN, NEBRASKA

Dec. 3, 1927

The Fate-Root-Heath Co.
Plymouth, Ohio

Gentlemen:--

Our first experience with Plymouth gasoline locomotives was in building fourteen miles of concrete seawall on the Gulf Coast, where three 6-ton Plymouth units were used for a period of seven months. These locomotives were operated continuously under most severe conditions, at an astonishingly low figure for maintenance, and at the finish of the job were in excellent condition.

They were then transferred to our Starved Rock, Illinois Job, where we are placing a total of 100,000 yards of concrete, all to be handled from a central mixing plant in 2 yard cars. In order to complete our daily schedule, it was necessary that more power be provided, so three duplicate 6-ton units were purchased, making six Plymouths in all handling this job, and carrying out our program continuously without any delays.

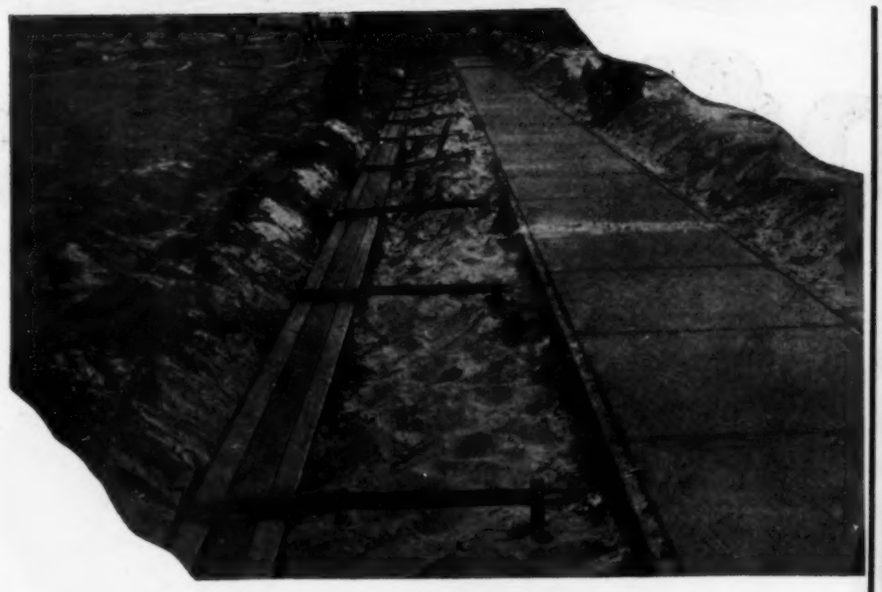
We have absolute confidence in the ability of Plymouth locomotives to handle our hauling problems in a most satisfactory manner

Very truly yours,
WOODS BROS. CONSTRUCTION CO.
Wayne Pringle
Chief Engineer

PLYMOUTH

GASOLINE *Locomotives* DIESEL

If it's a Track Haulage Problem
There's a PLYMOUTH to Solve It



200,000 Linear Yards of Curb and Sidewalk on this Heltzel Equipped Job

The curb forms are HELTZEL yoke type.

On each end of the curb rails is angle steel with drilled holes. Lugs on both sides of the yoke align with these holes, the yoke supporting the rails and affording positive alignment of the form. The division plates slide down inside the yokes at each rail intersection. Clearance is provided under the yoke for the use of finishing tools.

To assemble—set the front and back rails, slip the yoke into place and insert the division.

Adjustable lateral braces attached to the yokes hold the form in position.

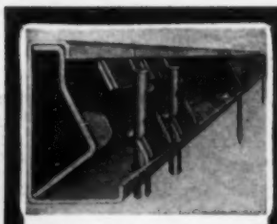
HELTZEL straight and battered curb forms also manufactured with sleeve type of joint and long winged division plates which extend through slots in the front and back rails the full depth of the rail to prevent spreading.

With all types of HELTZEL Curb Forms the division plates can be removed without disturbing the side rails.

Check the coupon for HELTZEL Catalogue of Curb, Curb and Gutter, and Sidewalk Forms.

THE HELTZEL STEEL FORM & IRON COMPANY, WARREN, OHIO

Manufacturers of Steel Road Forms, Steel Curb & Gutter Forms, Steel Sidewalk Forms, Mixing Boxes, Agrabatchers, Trailer Bins, Stationary Bins, Manhole Forms, Sewer Forms, Pipe Forms, Finishing Machines, Strikeoffs, Trail Graders, Subgrade Testers, Traveling Bridges, Car Unloaders, Steel Mortar Boxes, Steel Tool Boxes, Joint Machines.



Heltzel Improved "Armor Plate" Steel Road Forms

Heltzel Steel Curb and Gutter Forms

Heltzel Integral Curb Forms

Heltzel Joint Plates

Heltzel Bins and Agra Batchers

HELTZEL CONTRACTORS EQUIPMENT

Better Equipment Means More Profits

The Heltzel Steel Form & Iron Co., Warren, Ohio. (C.M.)

Send me information on:—

Road Forms..... Curb Forms.....

Curb and Gutter Forms.....

Joint Plates..... Bins.....

Name.....

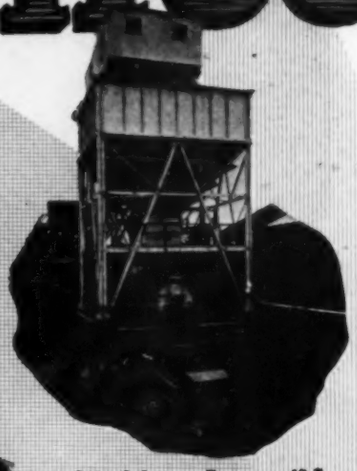
Address.....

City..... State.....

Confidence

Jahncke Service, Inc., of New Orleans owns a Ransome 28-S

Hawkins-Poulsen Co. of Uniontown, Pa. operate a Ransome 28-S.



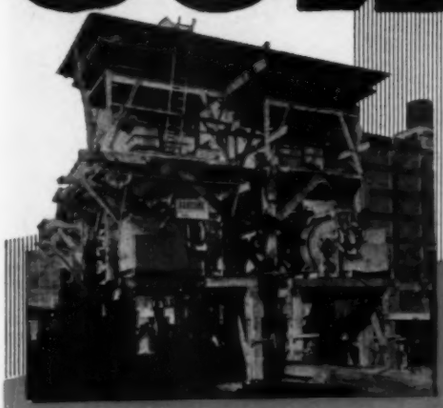
One of the two Ransome 42-S Mixers owned by the West Jersey Sand and Supply Co., Philadelphia, Pa.

Ransome Central

Two Ransome 56-S Mixers operated by the General Materials Co. of St. Louis, Mo.

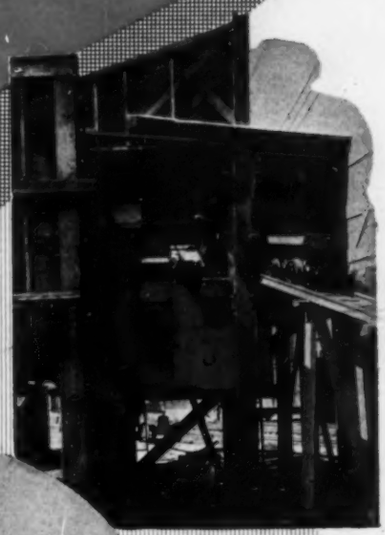
Confidence

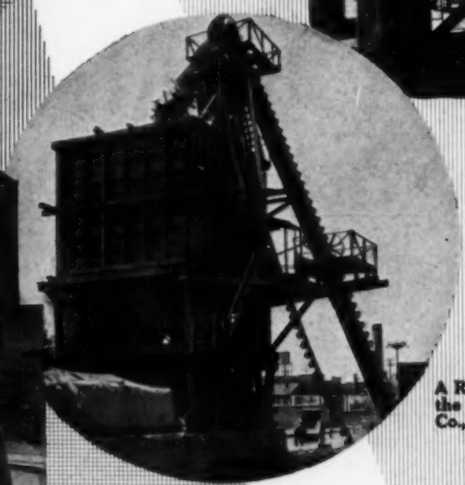
Mixing Plants



The Keystone State Construction Co. of Philadelphia owns two Ransome 28-S mixers.

In Morgantown, W. Va., the [illegible] Sand Co., operates a Ransome 28-S.





A Ransome 56-S owned by the Ready Mixed Concrete Co., of Kansas City, Mo.

A Ransome 84-S owned by the Ready Mixed Concrete Co., Pittsburgh, Pa. Another has been ordered.

The fact that Ransome Mixers predominate in the plants of the Ready Mixed Concrete Industry is the best proof of the confidence in Ransome.

Ransome Concrete Machinery Company

1930 — Service for 76 Years — 1928

Dunellen **New Jersey**

Westchester Avenue, White Plains, New York—a beautiful stretch of concrete road, lastingly protected by Carey Elastite Expansion Joint.

County Roads which have a *National Reputation*

"IN 1915 when we first began to use concrete pavements in this County," said Mr. Charles MacDonald, County Engineer of Westchester County, New York, "we experimented with a very thin submerged joint. It was soon found that due to the extreme temperature changes in our climate this type joint would not work successfully. After a series of experiments, where several kinds of joints were used, we finally adopted a thicker joint which would pass entirely through the concrete, leaving the adjacent slabs independent of one another.

"During the past five years, we have used preformed asphaltic joints placed at 50 foot intervals and which, during that time, have given us very satisfactory results. Where there is curbing we use longitudinal joints at each curb and where there is no curbing we use the premolded joints at the transverse joints only.

"Our roads are rather heavily reinforced by the use of a built-up bar mat, weighing approximately 86 pounds to the 100 square feet. This reinforcement is placed two inches below the surface and, in addition, we use a ⅜ inch marginal bar entirely around the slab, two inches from the top, and a like distance from each of the four sides. A similar marginal bar is placed two inches from the bottom of the slab in like manner."

C. MacDonald, County Engineer of Westchester County, New York. Westchester County, which includes many of the finest of New York City's suburban communities, is known all over the country for its splendid highway system. Mr. MacDonald has had a large part in upbuilding the reputation of the county in respect to the highways, for he has been County Engineer since 1915. Prior to this he was Treasurer and Manager of the Wulf Engineering Company, specializing in municipal engineering.

THE PHILIP CAREY COMPANY, *Lockland,* Cincinnati, Ohio

Carey Elastite EXPANSION JOINT

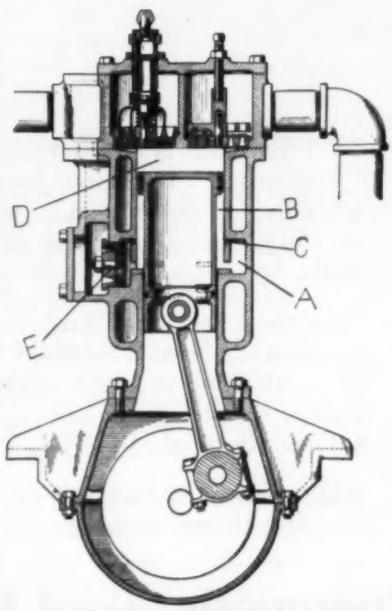
Here's the Famous SUPER-CHARGER of the Thor SIX PORTABLE COMPRESSOR

A Simple, Patented Construction That Enables the THOR To Deliver 26% More Air Than Any Other Compressors of the Same Size

You have always bought compressors on the statement of "this compressor is rated at, or has a capacity of, 110 cu.ft. of air per minute." **BUT "CAPACITY" OR "RATING" AND "ACTUAL DELIVERY OF AIR" ARE TWO DIFFERENT THINGS.** Capacity or rating means that **IF** there wasn't any clearance loss, valve slippage, excess tension of springs, piston leakage, humidity or a lot of other things, the compressor would then deliver 110 cu.ft. of air per minute.

HOWEVER, NO COMPRESSOR EVER DELIVERS AN AMOUNT OF FREE AIR EQUAL TO ITS DISPLACEMENT. The actual delivery of air ranges from 60 to 70% of the capacity or rating.

AND THAT IS WHY THE THOR SIX HAS A SUPER-CHARGER. The Rix Super-Charger counter-acts these various losses by making the **THOR** unit about 83% efficient. The **THOR** has a capacity of 116 cu.ft. and actually delivers 96 cu.ft. of it. Other compressors with a capacity of 110 cu.ft. deliver only 66 to 77 cu.ft. of air. **DO YOU SEE THE DIFFERENCE?**



The RIX SUPER-CHARGER
Pat. April 30, 1918

Note that there is nothing complicated about the Super-Charger, and that is why THOR costs no more than ordinary compressors.

The Rix Super-Charger is an exclusive, patented feature of the **THOR**, that utilizes the idle or downward stroke of the piston to compress the additional air the **THOR** delivers. There is nothing complicated about it. It is simple and fool-proof.

The Rix Super-Charger consists only of a two diameter piston and cylinder, with an annular space (A) at the lower end of the cylinder, into which air is drawn through supercharger valve (E) on the up-stroke, and compressed on the down stroke of the piston. The area of the annular space between the cylinder wall and the trunk of the piston (B) is so proportioned that the amount of air compressed therein on the down stroke is one-third of the cylinder volume. The major portion of this is delivered through the flash port (C) at the bottom of the main piston stroke, after the cylinder (D) has been filled with air drawn in normally through its intake valves.

INDEPENDENT PNEUMATIC TOOL CO.

PNEUMATIC TOOLS

GENERAL OFFICES
600 W. Jackson Blvd.
CHICAGO

ELECTRIC TOOLS

FACTORY AURORA, ILL.

BRANCHES THE WORLD OVER

Eastern Office 1463 Broadway, New York

London Office 40 Broadway, Westminster, London

LOOK AT THOSE LUMPS!

Chicago Pneumatic Portable Gasoline Engine Driven Compressor

CP Portable Compressors are built in sizes of 100, 160, 220 and 310 cu. ft. per minute. Mounted on steel or solid rubber-tired wheels, trailer, skids, motor truck or flanged wheels for railroad service.

THE photo is characteristic of CP-114 pavement breakers at work. It shows pretty well that CP-114's are fast workers. It doesn't show what users tell us, about the 10% to 150% greater cutting capacity that they get with these tools.

You may feel that any demolition tool will perform in a Tropical or Semi-Tropical Clime—that is true—but CP-114's go right along in frigid weather without freezing, when other makes of paving breakers are getting thawed out on the salamanders—CP-114's are dependable in any weather.

Making money in the contracting game depends mostly on keeping things moving. CP-114's won't let you down.

Chicago Pneumatic Tool Company

6 East 44th Street, NEW YORK, N. Y.

*Sales and *Service Branches all over the World*

*Birmingham	*Cleveland	Houston	*New York	*San Francisco	*Berlin	Calcutta	Helsingfors	*London	Moncton	*Paris	*Sao Paulo	Timmins
*Boston	Dallas	Knoxville	*Philadelphia	*Seattle	Bogota	Copenhagen	Honolulu	Madrid	*Montevideo	Ponce	Seoul	Tokyo
Buffalo	Denver	*Los Angeles	*Pittsburgh	*St. Louis	*Bombay	Dairen	*Johannesburg	Manila	*Montreal	Rio de Janeiro	Stockholm	*Toronto
*Chicago	*Detroit	*Minneapolis	Richmond	Tulsa	*Brussels	*Durban	Kobe	*Mexico City	Osaka	*Rotterdam	Sydney	*Vancouver
*Cincinnati	El Paso	*New Orleans	Salt Lake City	Athens	*Buenos Aires	*Havana	Lima	*Milan	Oslo	Santiago	Tampico	*Winnipeg

Canadian Pneumatic Tool Company, Ltd., Montreal, manufacturers of Chicago Pneumatic products in Canada
Consolidated Pneumatic Tool Company, Ltd., London, manufacturers of Chicago Pneumatic products in England

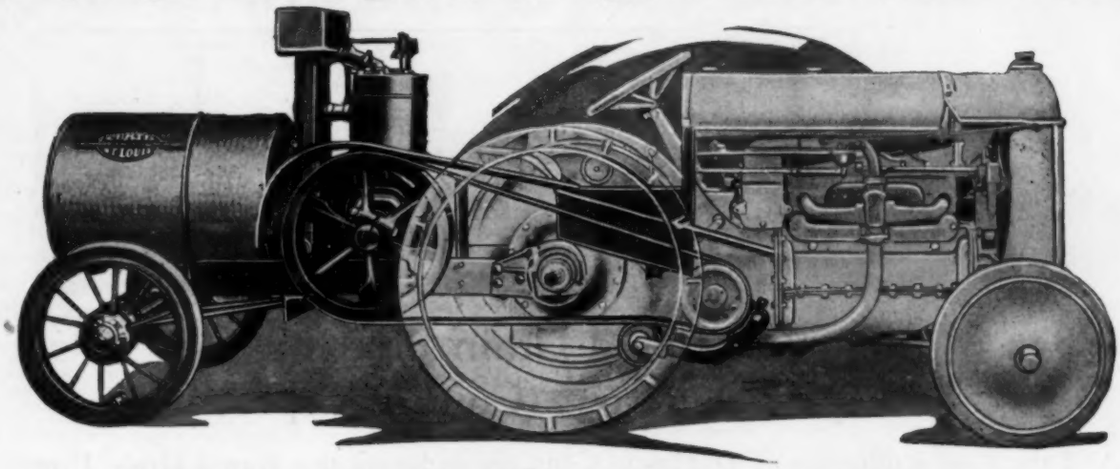
J-281

CHICAGO PNEUMATIC AIR COMPRESSORS · BOYER PNEUMATIC HAMMERS · ROCK AND COAL DRILLS · CONDENSERS
LITTLE GIANT PNEUMATIC AND ELECTRIC TOOLS · GIANT OIL AND GAS ENGINES · VACUUM PUMPS · OIL BURNERS
PAINT SPRAYERS · TOOL BALANCERS · PNEUMATIC HOISTS · SAND BLASTERS

CHICAGO PNEUMATIC

Depend Upon That Name

Daily operating cost equals one man's wage



Yet the Curtis Portable Compressor

does the work of 6 to 8 men!

1. Saves time

The successful bidder on any job must know how to "turn corners" on cost. The Curtis portable compressor is an important form of cost-saving equipment. It saves time in getting the compressor to the work. It prevents stoppage of work for the purpose of moving the compressor or extending air-lines, because the Curtis is instantly moved under Fordson power and may be kept, always, within hose length of the work.

2. Saves fuel

The principal item of cost in air compression is the expense of fuel. The Fordson burns kerosene successfully, often making a surprising reduction in this item of cost.

3. Saves labor

On rock in road work, sewage, water, gas-conduit or steampipe jobs, in places where pavement is to be cut, rock or masonry broken out, or backfill to be tamped, it has been variously estimated by users that the Curtis unit is the equivalent of a gang of 6 to 8 men at the cost of one man. Saves the wages of a compressor attendant, and never requires the time of a gang of men to drag it from place to place.

4. Saves investment

The Curtis is a high grade outfit furnished at a low price by reason of economy in design and manufacture. Combined with the Fordson, the whole outfit costs substantially less than the usual engine and compressor set on a four-wheel mounting. If you have a Fordson now, you can get a Curtis outfit separately, further reducing your investment.

5. Does what no other compressor can do

The Fordson will take this outfit into country so rough and hilly that you would have difficulty taking even a truck, and the cost is much less than a truck-mounted compressor. By keeping the compressor always within hose length of the work, there is a corresponding saving in pressure loss and leakage. This often results in so great a saving as to make the Curtis compressor the equivalent of a larger unit. The fact that the Curtis can be detached in a few moments means that your power plant can be made available quickly for other uses when the compressor is not required.

Altogether there are so many conveniences and economies in this outfit that you can not fully appreciate them without a thorough investigation. Write today and let us send details.

Portable Compressor, both operated and moved by Fordson.
Model "A" Air Compressors. Full self-oiling. Water cooled. Up to 50 H. P.
Style "V" Two-Stage Compressor. Air-Cooled. ¾ to 2 H. P.
Air Hoists, Cranes, Trolleys. Fast, economical, speed up production.
Paint Spray Compressor. Hand unloader. (By-Pass for starting.)
Compressed Air Car Wash System. A complete cleaning service.
Hydraulic Car Washer, 1 H. P.; 2 H. P.; 2 H. P. oversize.
Rotating Auto Lift, Oil-Locked. Absolute control and safety.
Air Stands. Reel type or tower type. Easy to operate.
F2

Check items in which interested, write name and address in margin—and mail

Curtis

Pneumatic Machinery Company

Seventy-Fourth Year **St. Louis**

1905 Kienlen Ave., St. Louis 5518-N Hudson Terminal, New York

6000 ft. Rapid Drain Pipe for City of Danbury, (Conn.) Airport

And the City Engineers of Danbury, Conn., in ordering this Rapid Drain Pipe echo the opinion of engineers and contractors everywhere. It is superior to any other pipe for draining road beds, golf courses, air ports, athletic fields, cellars, etc.

Where shall we mail our illustrated booklet detailing the reasons?

Rapid Drain Pipe

WALKER CEMENT PRODUCTS, Inc.

PLANT NO. 2 BALDWIN, L.I. N.Y. LITTLE FERRY, N.J. HEMPSTEAD R.F.D. 3

Nine Years of Continuous Trucking Over These "ANTI-HYDRO" Hardened Concrete Floors Have Shown No Wear.

The concrete floors and loading platform in this soap factory are hardened in the one inch topping with "ANTI-HYDRO." The strong caustic soda and other soap ingredients in their raw state are harmful to ordinary concrete and would soon disintegrate it. Added to this condition is the continuous trucking of heavily loaded, metal wheel trucks over the floors.

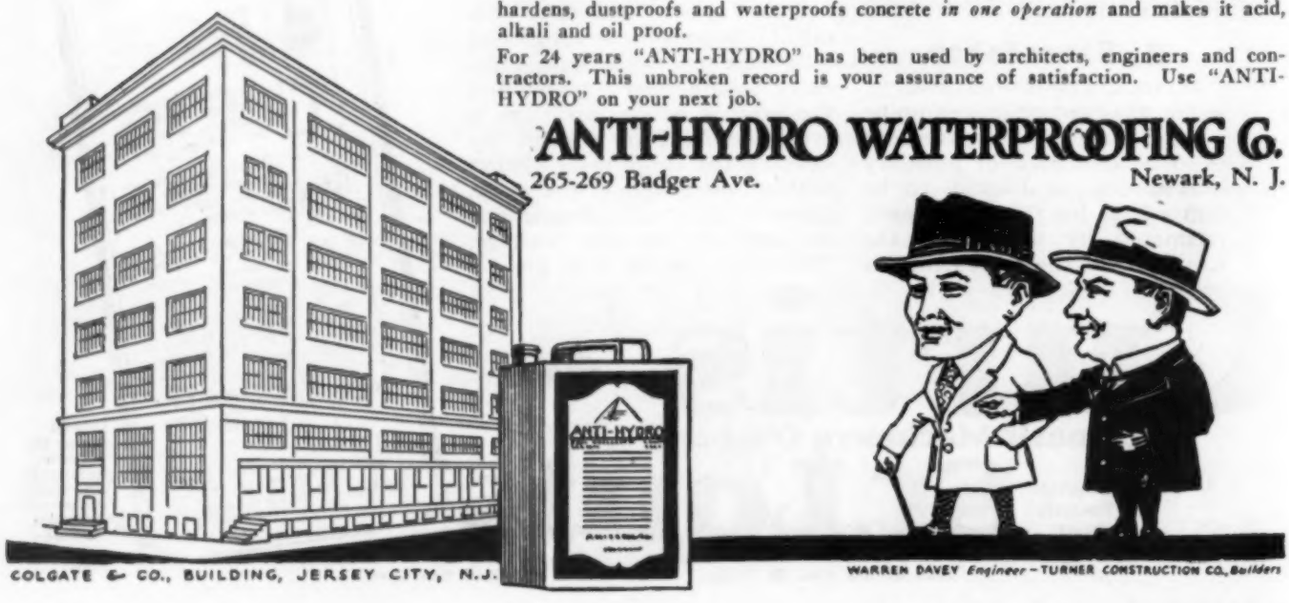
In spite of this severe usage these "ANTI-HYDRO" hardened floors have shown no appreciable sign of wear during the nine years they have been in use.

"ANTI-HYDRO" is a liquid integral compound which mixes easily—without the aid of skilled labor—with the water used in wetting down the cement topping. It hardens, dustproofs and waterproofs concrete *in one operation* and makes it acid, alkali and oil proof.

For 24 years "ANTI-HYDRO" has been used by architects, engineers and contractors. This unbroken record is your assurance of satisfaction. Use "ANTI-HYDRO" on your next job.

ANTI-HYDRO WATERPROOFING Co.

265-269 Badger Ave. Newark, N. J.



COLGATE & CO., BUILDING, JERSEY CITY, N.J.

WARREN DAVEY *Engineer* - TURNER CONSTRUCTION CO. *Builders*

LOWELL WRENCH CO.
54 COMMERCIAL ST.

Worcester, Mass.
March 1, 1928.

U. R. A. Contractor,
Somewhere, Everywhere.

Dear Friend:

Nowadays, you can't be chasing around hunting a gold mine to make your living. You're too busy. Besides gold can be easily made in other ways.

Using a Lowell Reversible Ratchet Wrench is one of the other ways. IT SAVES TIME AND TIME IS MONEY.

The man using this tool will tell you,—"No slipping,—no taking off and on the nut,—just one pull after another." That's the story every time.

When they built the Hudson River Vehicular Tunnel, the Lowell Wrench with its Reversible nature (and that's a good nature to have, too) was right on the job. It performed so well that they have now asked it to help on the new tunnel. It's already at work.

You may not have a job like this, but whatever you have, don't go "nutty" over the amount of time your men lose in using the ordinary wrench. AND DON'T OVERLOOK IT EITHER.

Every construction job has a lot of work to be done with wrenches. Yours is no exception.

Pay day? To-day and once every week for the men. There's only one pay day to the Lowell Wrench and that's when you buy it. After that, IT'S ALWAYS PAYING YOU.

Think it over. Send for our Catalog M and look that over. SAVE TIME AND YOU SAVE MONEY.

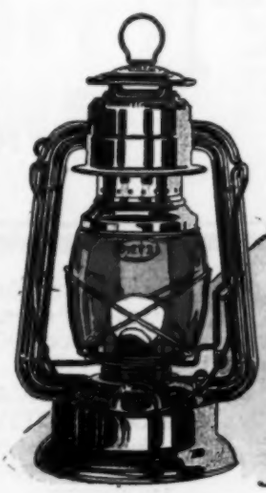
LOWELL WRENCH CO.
54 Commercial St.
WORCESTER, MASS.

Put Brighter LIGHTS on Guard for PROTECTION

BECAUSE of high power lighting, small size and attractive price, Dietz Little Wizard Cold Blast Lanterns are used extensively on construction work along busy highways. They afford utmost protection to contractors against damage claims.

Dietz "Little Wizard"—11½ in. high—6 Candle Power—Burns 20 hours.

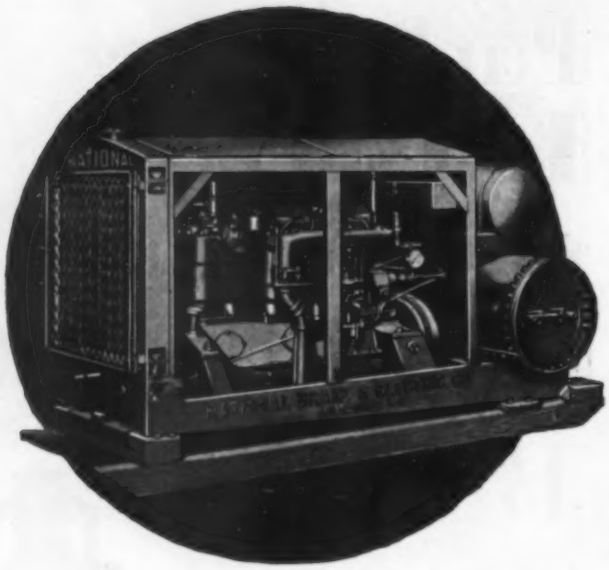
R. E. DIETZ COMPANY
NEW YORK
Largest Makers of Lanterns in the World
Founded 1840



DIETZ LANTERNS

DIETZ LITTLE WIZARD *for CONTRACTORS*

Dual Cooling System *Adds* to Dependability!



The most satisfactory, continuous-service compressor operation requires a definite, comparatively high gas engine temperature, and, at the same time, the lowest possible safe temperature for the compressor. The dual cooling system of National Compressors maintains this condition, at an ideal balance. This is accomplished by means of a fool-proof thermostatic control installed in the water circulating system. It controls the flow of circulating water through the gas engine but permits, at all times, a free flow of water through the compressor.

National Air Compressors are built in 110, 160, 240 and 330 Cu. Ft. sizes, furnished in all standard mountings—skids, steel and rubber tired, steel wheel trucks, or for mounting on Ford or Chevrolet truck chassis.

THE value of any mechanical equipment must necessarily be based upon the dependability of its service as well as the efficiency of its performance.

A dual cooling system is one of the important factors that adds materially to the service dependability of Westinghouse-National Air Compressors.

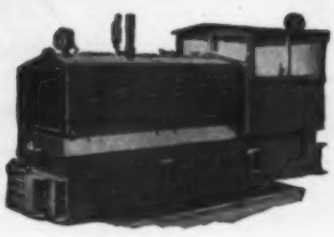
Unit principle design, extreme compactness, and mechanical units of the highest operating efficiency, assure the operator of pneumatic equipment the greatest measure of service at the lowest cost for up-keep and equipment shut-downs.

Westinghouse-National Air Compressors are the successful result of 31 years of air compressor manufacturing experience.

[*Exclusive territorial sales franchises available*]

National AIR COMPRESSORS
A WESTINGHOUSE PRODUCT

NATIONAL BRAKE & ELECTRIC COMPANY
Division of Westinghouse Air Brake Company
MILWAUKEE, WIS.

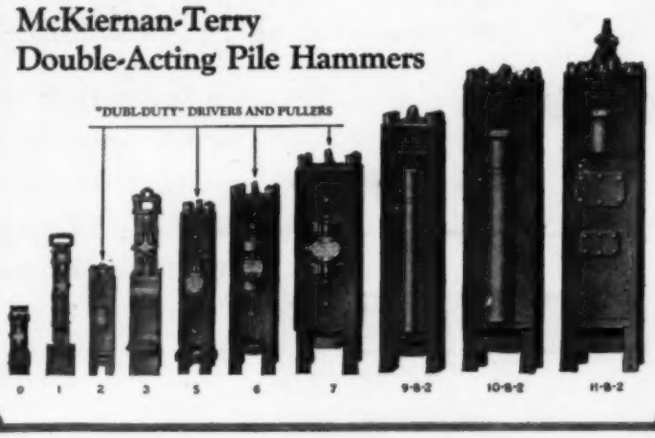


Milwaukee Gasoline Locomotives will solve your haulage problem. All sizes, all gauges. Pioneer builders of gasoline locomotives since 1907. Get acquainted with our Type "H" Models.

MILWAUKEE LOCOMOTIVE MFG. CO.
Subsidiary of National Brake & Electric Company
MILWAUKEE WISCONSIN

MILWAUKEE Gasoline Locomotives
Another Westinghouse Product

McKiernan-Terry Double-Acting Pile Hammers



Here's the whole family! No. 0, the baby, weighs 95 pounds. The big fellow at the other end weighs 13,185 pounds. You will find some of these pile hammers on practically every big job in North and South America, Europe, Asia, Africa, and Australia. In fact, 5 out of 7 of all the double-acting pile hammers used throughout the world are made by McKiernan-Terry.

The three Type B machines work under water as efficiently as on land—submerged to depths of 80 feet or more. In fact, this use for these hammers has now become standard practice, and more than half of the Type B machines built to-day are purchased for submarine as well as land work.

On a New York Subway job, 84 out of 89 light pile hammers, used by 14 contractors, were McKiernan-Terry machines.

McKiernan-Terry PILE HAMMERS

Telephone or telegraph nearest dealer—

ALBANY, GA.
Yancey Tractor Company
ATLANTA, GA.
Yancey Brothers
BALTIMORE, MD.
D. C. Elphinstone, Inc.
BOSTON, MASS.
Hedge & Mattheis Co.
BUFFALO, N. Y.
H. B. Trevor Co.
CHICAGO, ILL.
R. H. Hyland Company
CLEVELAND, O.
The Day & Maddock Co.
COLUMBIA, S. C.
Carolina Contractors' Equipment & Supply Co.
COLUMBUS, O.
McNeilly Machinery Company
DALLAS, TEX.
J. W. Bartholow Co.
DETROIT, MICH.
W. H. Anderson Tool & Supply Co.
DULUTH, MINN.
Borchert-Ingersoll, Inc.
FORT WORTH, TEX.
J. W. Bartholow Co.
HOUSTON, TEX.
R. B. Everett & Co.
JACKSONVILLE, FLA.
J. P. Benjamin
KANSAS CITY, MO.
Funkhouser Equipment Company
LOS ANGELES, CALIF.
Garlinghouse Brothers
LOUISVILLE, KY.
Brandeis Machinery & Supply Co.
MOBILE, ALA.
Turner Supply Company
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Ole K. Olsen
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PHILADELPHIA, PA.
Beckwith Machinery Company
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Beckwith Machinery Company
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ST. LOUIS, MO.
The Geo. F. Smith Co.
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The Galigher Company
SAN FRANCISCO, CALIF.
E. R. Bacon Co.
ST. PAUL, MINN.
Borchert-Ingersoll, Inc.
SEATTLE, WASH.
Clyde Equipment Company
Foreign Representatives:
The British Steel Piling Co., Ltd.
London, England

or mail this with your letterhead, please

To McKiernan-Terry Drill Co.,
14 Park Row, New York

☐ Send your 100-page book of pile driving job pictures.

☐ Send your local representative.

McKIERNAN-TERRY DRILL COMPANY
14 Park Row, New York

Pile Hammers for heaviest concrete sheet and bearing piles, submarine pile driving, timber and pipe piles, heavy steel cylinders, batter piling, heaviest and lightest steel and wood sheeting, pile pulling, and demolition. Ten sizes, from 95 to 13,185 pounds.

You can tell an Owen Bucket every time by its perfect balance and smooth, positive operation . . . both easily explained.

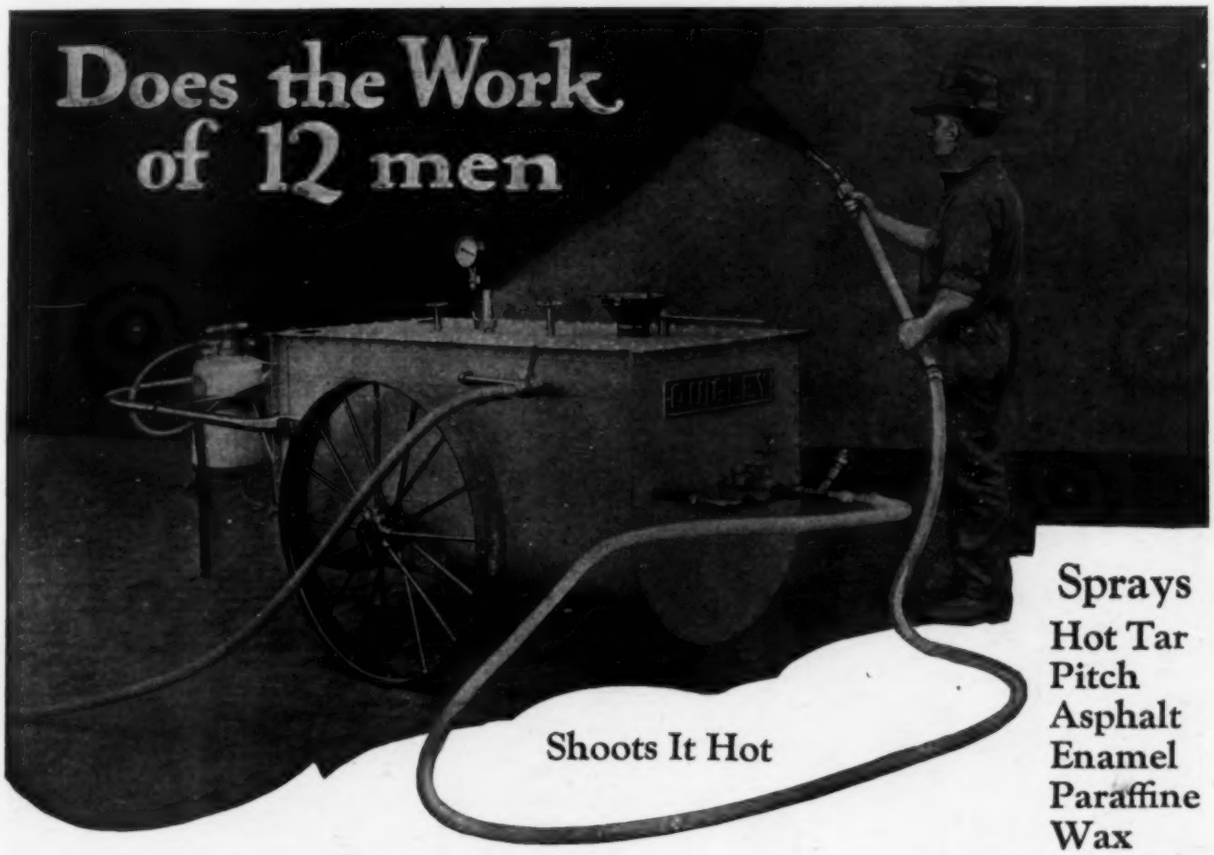
A one-piece Crosshead with fewer parts (no bolts or rivets to loosen) does away with top-heaviness and provides rigid upper arm connections. No rack, wobble or side play. And the upper and bottom closing sheaves are always in exact alignment, regardless of the extent of wear. The result . . . greater digging power . . . bigger grabs, no wasted operation . . . plus longer life.

There are 16 other important reasons why Owen Buckets are *guaranteed* to do a bigger day's work than any other bucket of same weight and capacity. Write for them.

* * *

The Owen Bucket Co.
6023 Breakwater Ave.
Cleveland, Ohio

Owen Buckets



The Quigley Bitumen Gun saves application costs

The antiquated, expensive method of applying protective coatings to foundations, walls, roofs, tanks, vats, reservoirs, penstocks, ships, barges, etc., by smearing hot tar, asphalt, pitch or enamel on the surface with mops and brushes, is entirely eliminated with the Quigley Bitumen Gun.

With the Quigley Gun two men have been able to do the work of twelve.

Liquids of varied consistencies, hot or cold, are sprayed through hose to a point within 200 feet. Will cover approximately 400 square feet in 5 minutes, to a 1/16-inch thickness, **and do it better** than is possible by the old method. The Gun may save its entire cost on a single job.

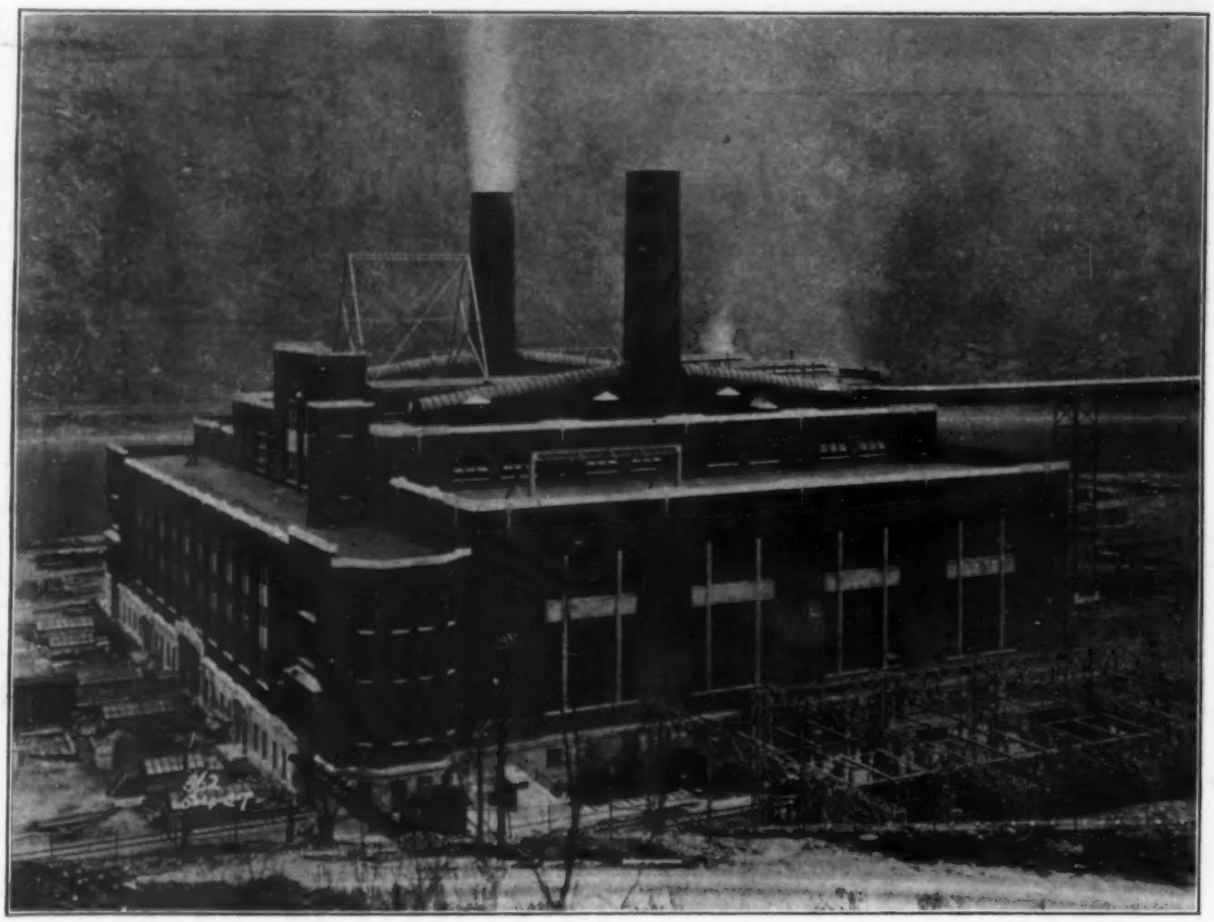
Thickness of coating can be regulated by control of heat, fineness and volume of spray. Outside cold weather application, with tenacious adherence, is possible. Atomization is a purely mechanical process. **Air is not mixed with the material.**

Write for Bulletin BG 4.

More than 100 Quigley Distributors in this and foreign countries

Quigley Furnace Specialties Co., Inc.

26 Cortlandt St. **New York**



Stanton Plant *West Pittston, Penn.*

American Gas and Electric Co.
Pennsylvania Power and Light Co.
Sargent and Lundy, Engrs.
The Foundation Company, General Contractor

The Stanton Plant is situated on the Susquehanna River at West Pittston, Pennsylvania, and was constructed by The Foundation Company as a joint project of the American Gas and Electric Company and the Pennsylvania Power and Light Company. The two sections of the plant can be operated as separate units for each Company or tied together electrically.

THE FOUNDATION COMPANY

CITY OF NEW YORK

Office Buildings
Industrial Plants
Warehouses
Railroads and Terminals
Foundations and Underpinning
Filtration and Sewage Plants

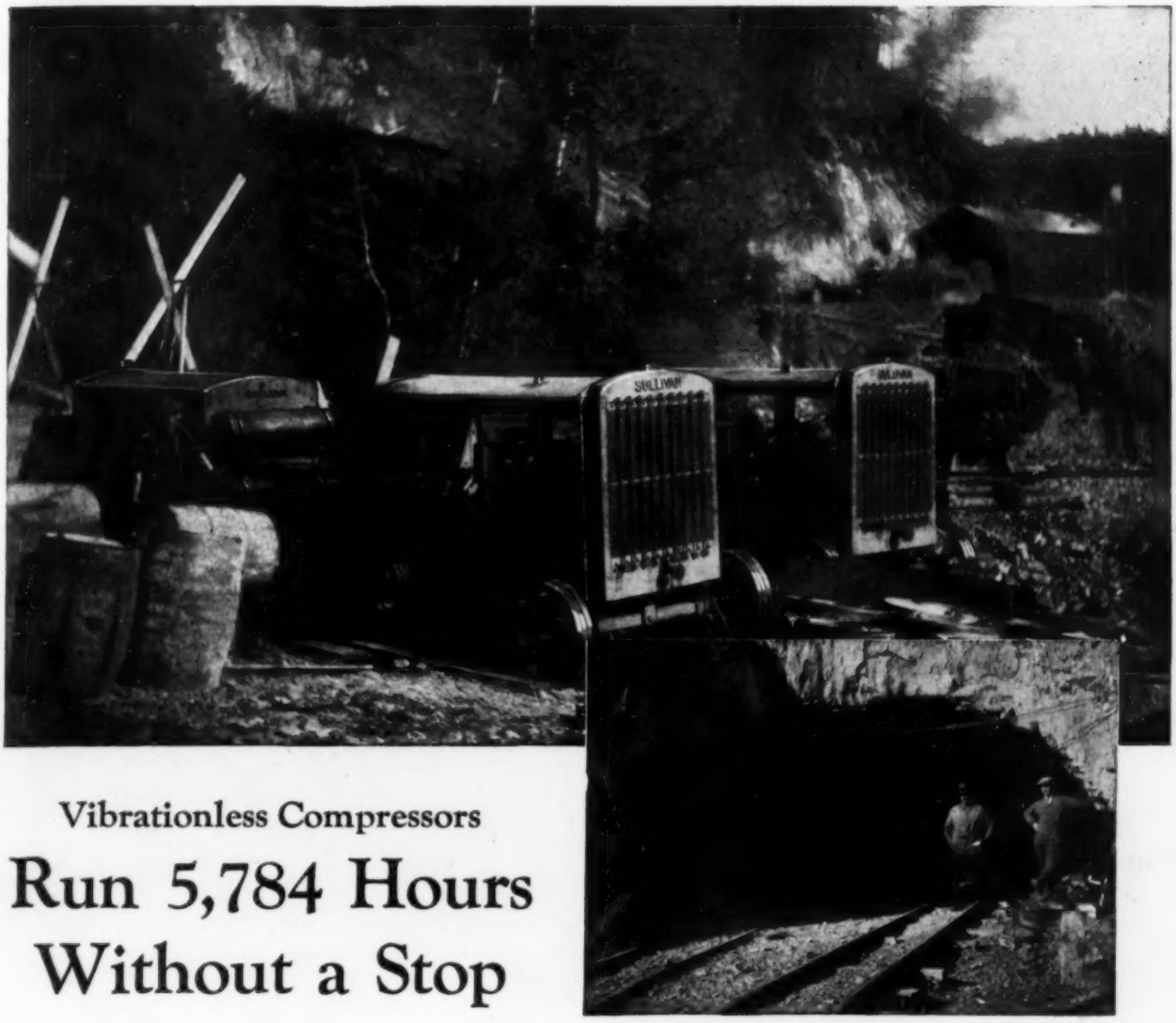
ATLANTA
PITTSBURGH
CHICAGO
SAN FRANCISCO

MONTREAL
MEXICO CITY
CARTAGENA, COLOMBIA
LIMA, PERU

LONDON, ENGLAND
PARIS, FRANCE
BRUSSELS, BELGIUM
TOKYO, JAPAN

Hydro-Electric Developments
Power Houses
Highways
River and Harbor Developments
Bridges and Bridge Piers
Mine Shafts and Tunnels

BUILDERS OF SUPERSTRUCTURES AS WELL AS SUBSTRUCTURES



Vibrationless Compressors

Run 5,784 Hours Without a Stop

Four Sullivan Vibrationless Portable Compressors, on a dam and tunnel job in New Brunswick, ran continuously for 5,784 hours. If the compressors had been auto trucks, in these 241 days each one would have traveled 100,000 miles.

The Dominion Construction Company was developing a hydro-electric project at Grand Falls, for the International Paper Company. A 29-ft. horseshoe tunnel was dug 2800 feet through solid rock—and the four 310-ft. *Vibrationless Compressors were connected in battery to run the drills at one end.

The compressors started up March 28th, and operated twenty-four hours a day, Sundays and holidays included, until November 24th, when the excavation was completed. None of the machines stopped day or night, except for a few ten-minute periods to change oil.

Such portable compressor performance was undreamed of a few years ago—but today the vibrationless operation of Sullivan Compressors makes it easily possible. Sullivans will keep your tools running and your profits coming. ***Send the coupon for full information.***

SULLIVAN MACHINERY COMPANY
168 S. Michigan Ave., CHICAGO

S U L L I V A N

*This Vibration Test Tells Your Compressor's Future

Place a glass of water, filled to the brim, on the frame of your compressor. Run the machine full speed and watch the glass. On the smooth-running Sullivan the water hardly ripples. Vibration, the greatest factor causing wear and trouble, has been reduced to almost zero, in Sullivan Portable Compressors.

Send me Free Catalog 7283-F describing Sullivan Vibrationless Compressors.

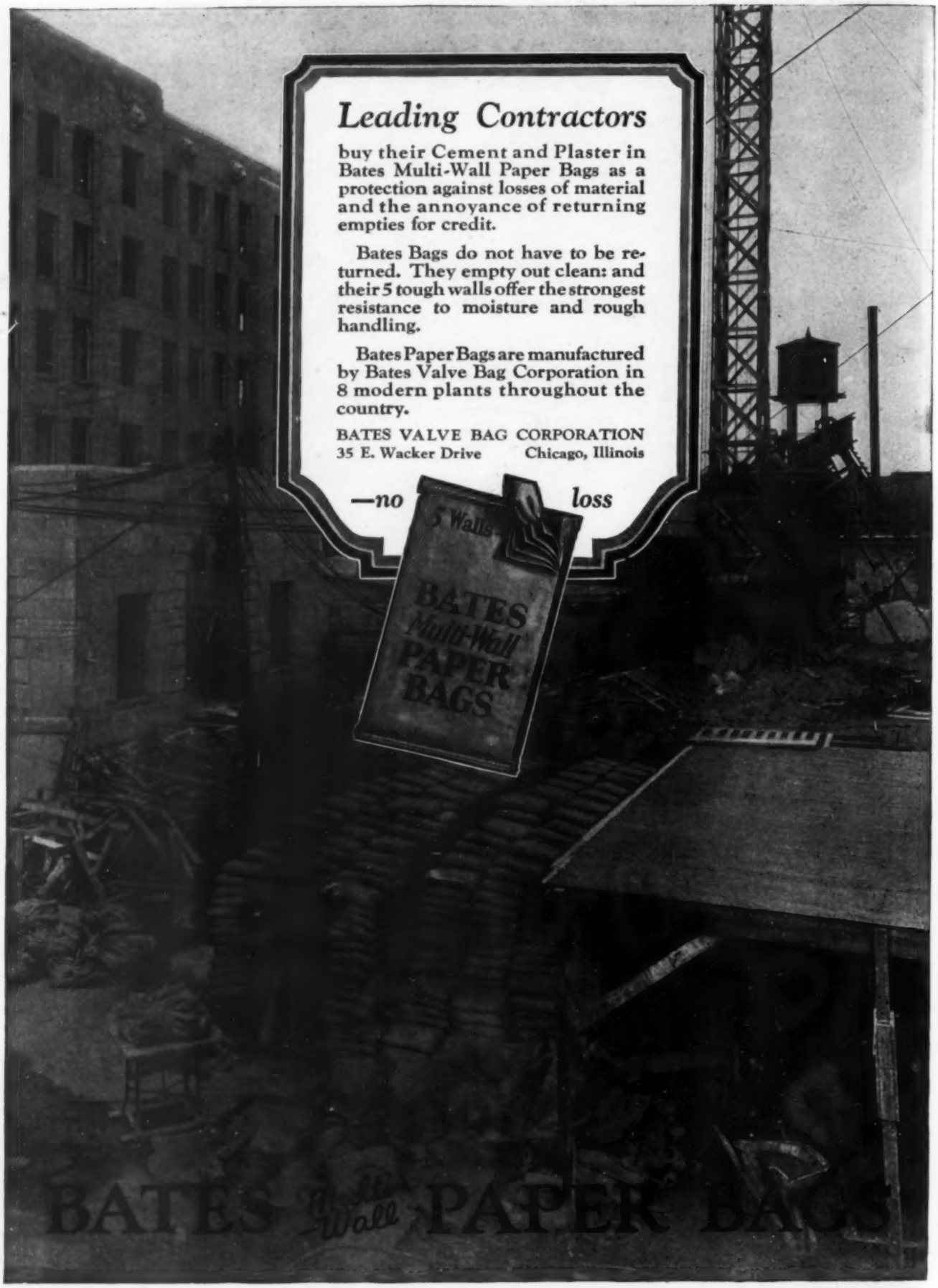
Name .....

Street Address .....

City ..... State .....

Occupation .....

Sullivan Machinery Company, 168 S. Michigan Ave., Chicago.


Leading Contractors
buy their Cement and Plaster in Bates Multi-Wall Paper Bags as a protection against losses of material and the annoyance of returning empties for credit.
Bates Bags do not have to be returned. They empty out clean: and their 5 tough walls offer the strongest resistance to moisture and rough handling.
Bates Paper Bags are manufactured by Bates Valve Bag Corporation in 8 modern plants throughout the country.
BATES VALVE BAG CORPORATION
35 E. Wacker Drive Chicago, Illinois
—no loss
5 Walls
BATES Multi-Wall PAPER BAGS
BATES Multi-Wall PAPER BAGS

The Great Lakes Construction Company bought the mortar cement for the new Cook County Court House and Jail, Chicago, in Bates Multi-Wall Paper Bags

Built on this Foundation

UNIVERSAL

TRUCK CRANES

Universals are built on a foundation of Speed—Speed in traveling from job to job—Speed in operation—and Speed in earning you big profits.

Mounted on motor trucks, Universals are the most mobile of cranes—they speed from job to job, anywhere, anytime, 15 to 25 M.P.H.

Operating speed is assured by a swing speed of 6 R.P.M. (faster than that of any similar crane) high hoist speeds and one man operation. "We dug and loaded into trucks, 416 yds. in 8 hrs."—"Our best day's run was laying 1200 ft. of 45 in. pipe," etc.,—these are typical reports on how Universal operating Speeds result in large daily capacity.

There are 12 interchangeable crane attachments for the Universal—Trench Hoe, Dragline, Shovel, etc., make it adaptable to practically every type of work.

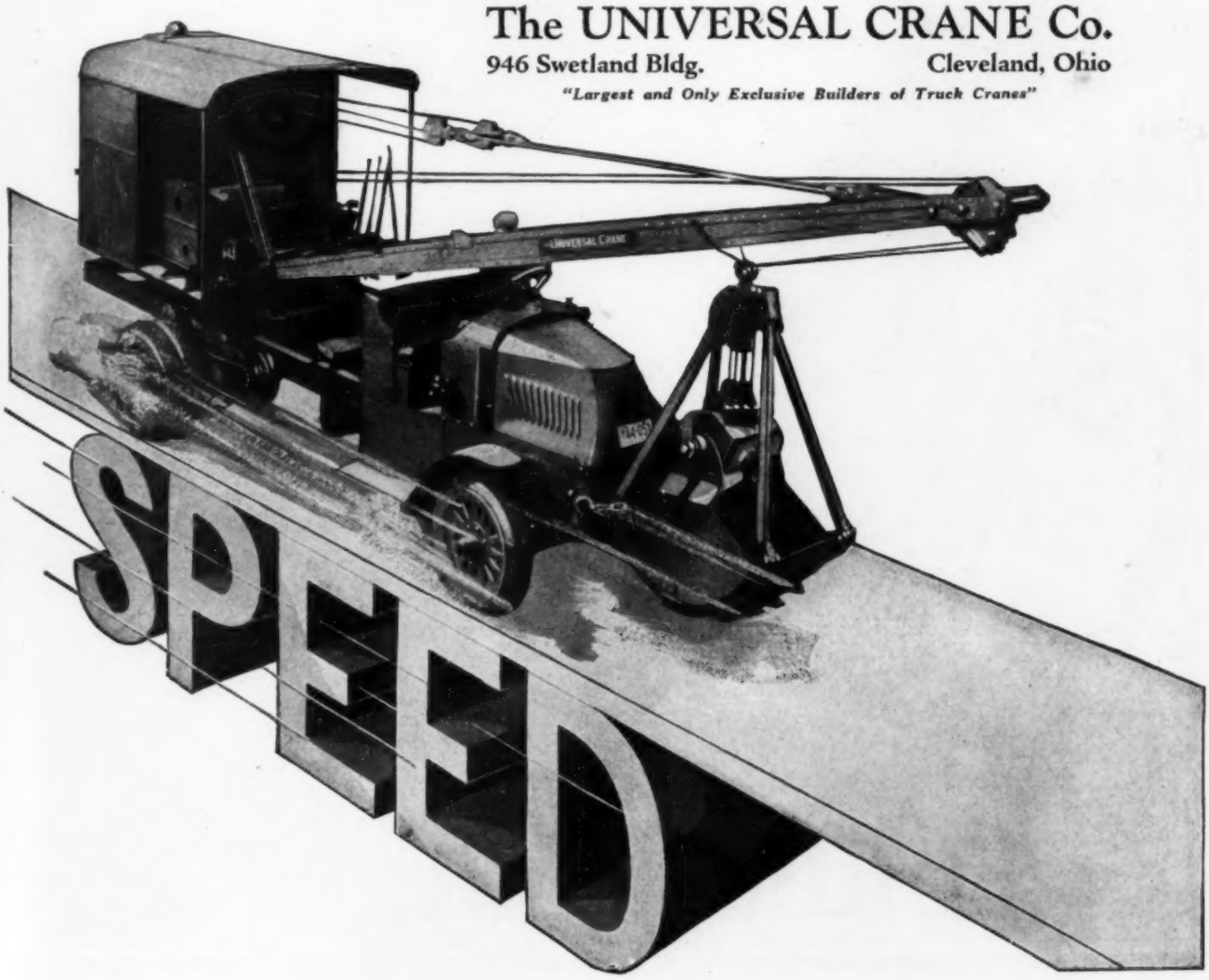
This combines adaptability with speed to get profits.

Write for Bulletin No. 36-D—it explains how Universal Speed will speed up your job.

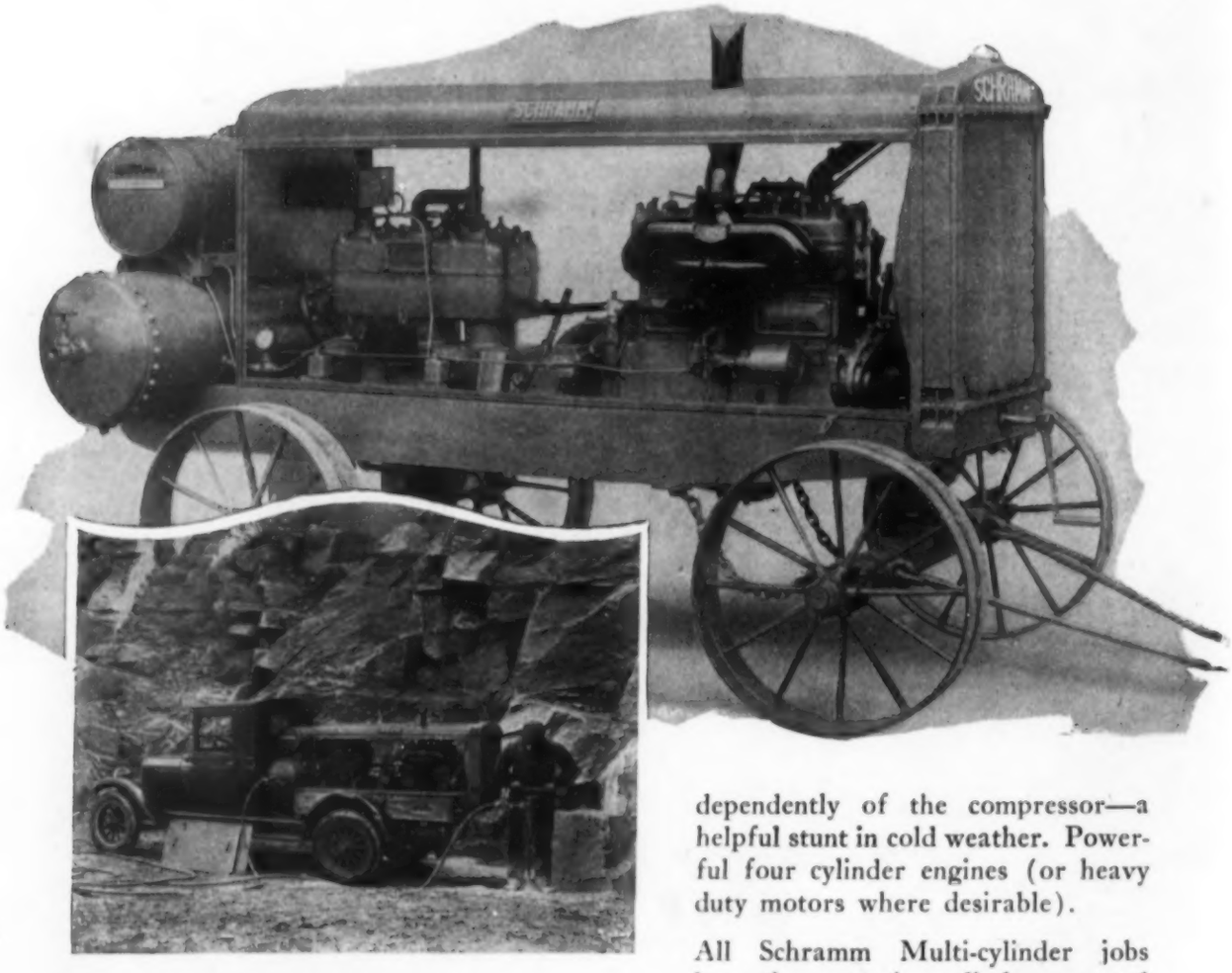
The UNIVERSAL CRANE Co.

946 Swetland Bldg. Cleveland, Ohio

"Largest and Only Exclusive Builders of Truck Cranes"



SCHRAMM PORTABLE AIR COMPRESSORS



MOUNTED on a light truck chassis—just one of the many Schramm combinations, of which there are more than any other make.

The special features of these hard-hitting Schramm Compressors include:

A special heavy-duty clutch-coupling which permits starting the engine independently of the compressor—a helpful stunt in cold weather. Powerful four cylinder engines (or heavy duty motors where desirable).

All Schramm Multi-cylinder jobs have the same size cylinders—a real feature which cuts down the quantity of spares required.

We are equipped to supply quick service on all standard models and parts from our branches and representative depots.

Schramm Compressors are conservatively rated at 60, 120, 180 and 240 cu. ft.

Get the new 1928 Catalog and our prices.

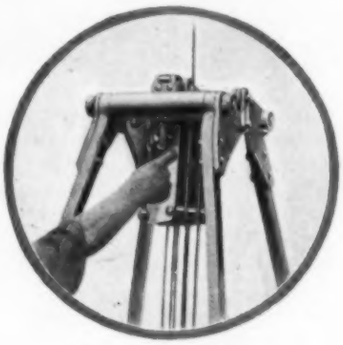
Schramm Inc.

West Chester
Penna., U.S.A.

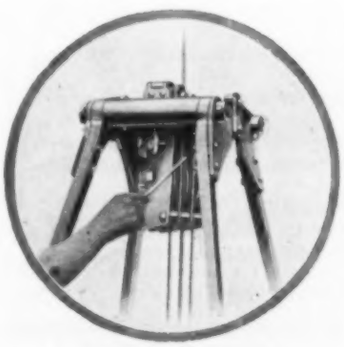
Hayward Class K Clam Shell used in excavating foundation.

Hayward Class K Clam Shell handling large size crushed stone.

7 part reeving



5 part reeving



3 part reeving

The most powerful digging clam shell bucket

The Hayward Class K Clam Shell is first of all a heavy digging bucket. Fitted with 7 part line reeving, it is the most powerful clam shell a user can enlist in his service.

The Class K Bucket is more than a one-purpose bucket, however. It is a bucket which can be made to take the place of two other types of buckets, merely by a simple change in reeving.

A change to five parts line reeving makes the bucket ready for any ordinary digging a clam shell will do, for rehandling large bulky loose materials up to 3″ crushed stone. A reduction to three parts line makes this Hayward a real hustler in light fast rehandling.

Let us send you bulletin No. 653 which gives you further information.

THE HAYWARD COMPANY

44 Dey Street, New York, N. Y.

Builders of Clam Shell, Orange Peel, Drag Line and Electric Motor Buckets; Dredging, Excavating, and Coal Handling Machinery; Automatic Take-Up Reels; Counterweight Drums.

—HAYCO—

HAYWARD CLASS "K" CLAM SHELL BUCKETS

"HOW'S YOUR NEW MARSH-CAPRON 10S ?"

"IT'S THE STRONGEST AS WELL AS FASTEST MIXER MADE, [illegible] SECTIONAL GEARS, SIDE, END OR OVER-HEAD CONTROL, TIMKEN BEARINGS IN THE DRUM ROLLERS AND SPLASH PLATE PROTECTION, WHERE ELSE COULD YOU GET ALL THIS ON A MIXER ?"

The Marsh-Capron Co.
11 S. LaSalle St. • Chicago

3½S • 5S • 7S • 10S
14S • 21S and 28S
Tilters and non-tilters

CM3-Gray

plenty of water *always with a* BARNES PUMP

Be sure of dependable water supply. A doubtful pump is a big gamble—a reliable Barnes pump a great safety factor. Compare the Barnes with any other pump for rugged strength, mechanical soundness, simplicity—and water pumping ability. See if you can duplicate all these features on any other pump:

1. Most simple; positive; self-oiling system—only one moving part.
2. All steel gears.
3. Forged Steel Crank Shaft—not cast.
4. Three point suspension truck, spring mounted.
5. Roller Bearings on all shafts, including crank shaft.
6. Water cylinders detachable from power end.
7. Rubber tired roller bearing wheels, interchangeable with standard steel wheels.

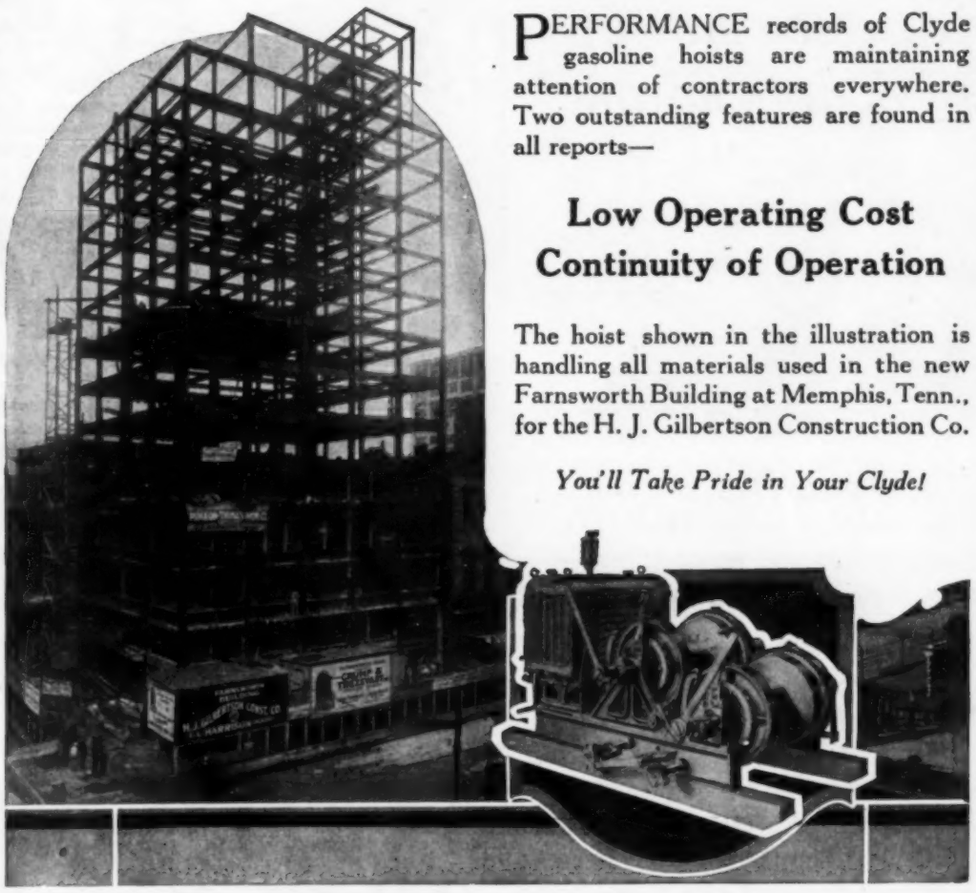
Barnes Road Pumps again set the pace for 1928. Capacity 60, 80, 100, 150 G. P. M. Pressures up to 500 pounds.

Send for free pump catalog

The Barnes Manufacturing Company
923 Main Street, Mansfield, Ohio

CLYDE

HOISTS CLYDE DERRICKS



PERFORMANCE records of Clyde gasoline hoists are maintaining attention of contractors everywhere. Two outstanding features are found in all reports—

Low Operating Cost
Continuity of Operation

The hoist shown in the illustration is handling all materials used in the new Farnsworth Building at Memphis, Tenn., for the H. J. Gilbertson Construction Co.

You'll Take Pride in Your Clyde!

CLYDE IRON WORKS SALES CO.

DISTRIBUTORS FOR CLYDE IRON WORKS DULUTH, MINNESOTA

NEW ORLEANS: 309 MAGAZINE ST.
NEW YORK CITY: 856 EAST 136TH STREET
PORTLAND, OREGON: 555 THURMAN ST.
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VANCOUVER, B. C.: STANDARD BANK BLDG.

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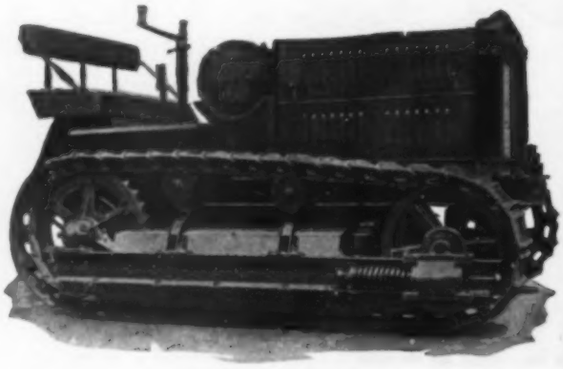
CHICAGO: 11 SOUTH LASALLE STREET
CINCINNATI: 201 W. PEARL ST.
MEMPHIS: 69 UNION AVENUE
JACKSONVILLE, FLA.: 112 W. ADAMS ST.
DALLAS: 508 REPUBLIC BANK BLDG.
OMAHA: 1003 FARNHAM ST.

CLYDE TWO MARKS OF GUARANTEED QUALITY

FOR SUCCESSFUL PERFORMANCE A.G.C. A.E.



"Many seasons of faithful dependable service"

THE DESIGN of Bates Tractors is such as to attain the utmost in ease of handling, in great drawbar pull, and massive rugged construction to withstand all the requirements of rough service.

Built broad and low and very staunch in every detail, Bates Tractors are attaining "results" in all types of tractor service.

Material of the highest quality, heat treated, giving the greatest resistance to wear, and devices for the almost perfect exclusion of dust, together with roomy accessibility are large factors in the satisfaction Bates Tractors are giving.

Write for details.

THREE SIZES
28 — 40 — 70

BATES TRACTORS

BATES MANUFACTURING COMPANY
Joliet, Illinois

NEW NEW NEW

575 lbs. of new pumping ability

Entirely new—a diaphragm pump that weighs only 575 pounds. Cuts water-lifting costs to new low limits. Opens new possibilities for contracting profits. Send for prices and information.

NOVO ENGINE COMPANY, 214 Porter Street, LANSING, MICHIGAN

NOVO THE NEW NOVO ROLLER ENGINES **VO**

Clarence E. Bement — Vice-Pres.&Gen.Mgr.

They Dominate

The Roller Field From Coast to Coast

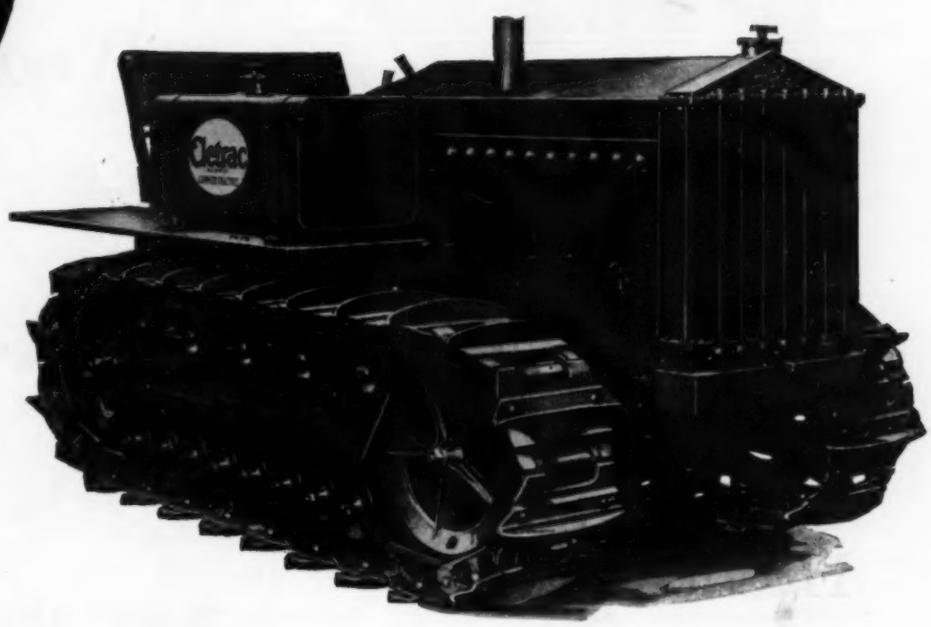
Is it because of BUFFALO-SPRINGFIELD'S reputation for superior performance? Or because there is a BUFFALO-SPRINGFIELD ROLLER for every special or general requirement? Or because of the prestige, good-will and confidence built up during a third of a Century of outstanding service? Whatever the reason—that they are preferred the country over is an established fact.

Full range of sizes in latest models, with or without scarifier or other attachments.

The Buffalo-Springfield Roller Co.
Springfield, Ohio

The CLETRAC "40"

Another CLETRAC Achievement!



The enthusiastic response to the introduction of CLETRAC 40 shows clearly that this new CLETRAC achievement is destined to be another great CLETRAC success!

A heavy-duty job with a wide margin of reserve power beyond its standard rating, this new CLETRAC is certain to interest every user of road-building, road-maintenance, earth-moving and general industrial equipment.

It's a beauty to look at—and a marvel in action!

Price, $3985 f. o. b. factory

WITH the advent of the "40", the Cletrac line now embraces the entire scope of power requirements for building and maintaining roads and for municipal and industrial service. Here — *in a single line* — you are assured of finding the proper tractor model for most efficient and economical handling of every specific power job.

In this latest model, as in all others, there is the characteristic quality, ruggedness and advanced engineering that has placed Cletrac in the first rank in the industry. Notable power capacity, positive traction, speed, "One-Shot" oiling, fuel and oil economy, long life — these and a score of other features give it a value comparable only to other Cletracs.

The Complete-Line Catalog Now Ready for You!

This attractive, new book gives you full information on the entire line of CLETRAC CRAWLER TRACTORS. It contains full specifications on all models — the "20", "30", "40" and the super-powered Cletrac "100". For up-to-the-minute facts regarding these record-making crawler tractors, get this book without delay.

MAIL THE COUPON NOW!

The Cleveland Tractor Co.
Cleveland, Ohio

THE CLEVELAND TRACTOR CO., C.M.
Cleveland, Ohio
Mail the New Cletrac Road Catalog at once to

Name_____

Address_____

_____

This NEW OFFER on the Hool and Kinne Library SAVES YOU $7.00

FOR a limited time we are offering with the Hool and Kinne Library a free copy of Dingman's Estimating Building Costs. In addition we have made the terms easier on the Library. Our offer gives you $34.50 worth of books for only $27.50. Put this $7.00 saving in your pocket by ordering NOW!

Hool and Kinne's

Structural Engineers' Handbook Library

6 volumes—3575 pages—fully illustrated

EVERY man concerned with the design and construction of civil engineering structures of any type should have these practical books with their helpful tables, diagrams, reference data, best methods and details.

The Hool and Kinne Library covers every phase of structural engineering from foundation and substructure work to the erection of a concrete building. The treatment of each topic is practical, thorough and authoritative.

Never before has such a large staff of well-known structural engineering specialists collaborated to produce a work of this kind. Much of the material has never before been available in book form. All of it is based on the experience and records of actual practice.

Examine the set for 10 days FREE!

Send the coupon and see these books for 10 days free. If they do not seem to be worth many times the 14 cents a day they cost, send them back. You get $34.50 worth of books for $27.50 on small payments. And they are really great, helpful books you can use to advantage.

—free if you act NOW!

Dingman's Estimating Building Costs, which we are offering free with the Hool and Kinne Library, is a practical, handy-size handbook, explaining the principles and methods of estimating building construction costs. It's packed with data that you can use in your daily work.

McGRAW-HILL FREE EXAMINATION COUPON

McGraw-Hill Book Company, Inc., 370 Seventh Ave., New York

You may send me the **Hool and Kinne's Structural Engineers' Handbook Library** for my inspection. If the books prove satisfactory I will send $3.50 in 10 days and $3.00 per month until I have paid the price of the books, $27.50. If the books are not what I want, I agree to return them postpaid within 10 days of receipt. Upon receipt of my first payment you are to send me a free copy of Dingman's Estimating Building Costs.

Signature .....

Home Address .....

City and State .....

Name of Company .....

Occupation .....

Write plainly and fill in all lines.

CM 3-28

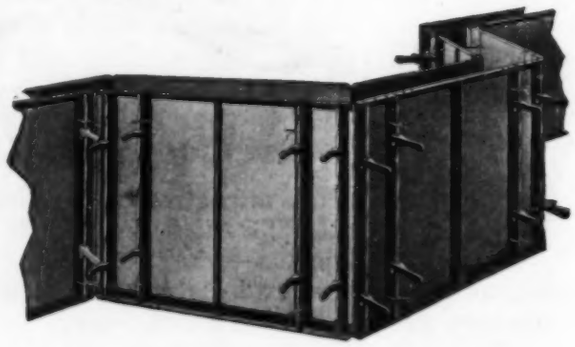
Metaforms

for every form building requirement

Wood forms leave only scrap heaps

METAFORMS leave one profitable job for another—as good as new—ready to set up in half the time with inexperienced labor.

Not only that, they save expense in handling and storage.

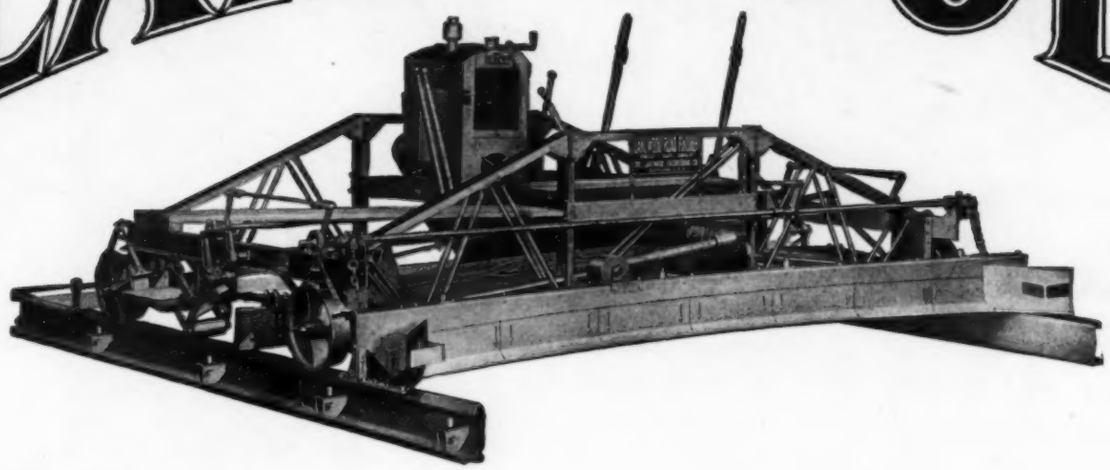


Let us tell you what you can do with Metaforms on straight wall or circular concrete construction.

METAL FORMS CORPORATION

Milwaukee, Wis.

LAKEWOOD

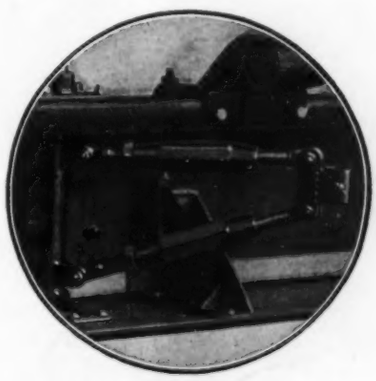


The Modern Mechanical Screed

The Tiltable Screed Member

Better surfacing action is obtained with the Lakewood Screed Member because it can be tilted to raise the front edge slightly. This is the same principle followed in finishing a concrete surface with a trowel, namely, to lift slightly the front edge of the tool and to apply pressure with the heel.

On the Lakewood Screed this is accomplished by adjusting the turnbuckles on the radius arms which carry the screed member itself. The illustration shown here indicates how this adjustment is made. The tiltable Screed is an exclusive feature of Lakewood machines.



This is the first of a series of advertisements outlining the exclusive advantages of the Lakewood Type "C" Screed. Complete details of the machine are given in Bulletin 47-S. You may have a copy for the asking.

EXPORT OFFICE: 30 CHURCH ST., NEW YORK CITY — CABLE ADDRESS: BROSITES

The LAKEWOOD ENGINEERING CO.

CLEVELAND, OHIO

Koehring Insley Blaw-Knox
Clyde Huber National
C.H&E. Handy
Bay City

Reach them all through

For good equipment, backed by centralized Service —for real saving in time and money — for real cooperation—call Cortlandt 8240—

REPRESENTING—
Koehring Co. Insley Manufacturing Co. Blaw-Knox Co. Clyde Iron Works C. H. & E. Mfg. Co. National Brake & Electric Co. Bay City Foundry & Machine Co. Huber Manufacturing Co. Handy Sack Baler Co.

R.E.BROOKS CO.

EQUIPMENT for CONTRACTORS
50 CHURCH ST. NEW YORK CITY

ACCEPT NO SUBSTITUTE

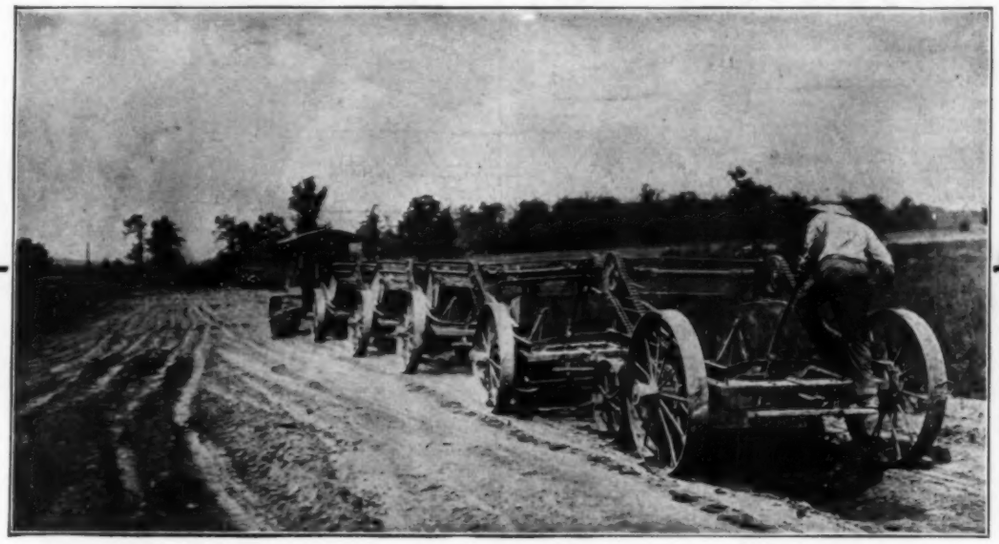
Sterling

"V-formed" front braces give greatest strength and rigidity to both tray and frame.

Properly balanced barrows *carry the load over the wheel.* Therefore the greatest stress and weaving is at the front. Ordinary braces of flat stock or even angle iron were found not strong enough to meet Sterling requirements. Sterling designed, scientifically, a special "V-formed" front brace. It gives to Sterling barrows a strength and rigidity not found in any other barrow. *They can't wobble.* This is another reason why *they cost less per job to use.* Buy them for your next job.

Leading Hardware and Equipment dealers have them — or they can get them quickly from our complete stock warehouses at Chicago, New York, Philadelphia, Pittsburgh, Cleveland, Detroit, St. Louis.

STERLING WHEELBARROW COMPANY
STERLING ON A WHEELBARROW MEANS MORE THAN STERLING ON SILVER
Milwaukee Wisconsin



Notice the finished appearance of the grade which this 5-Scraper Maney train has completed.

Fine "Rough" Grading at a Low Cost

The perfect pan control of Baker Maney Self-Loading Scrapers will mean much to you in reducing the cost of finishing your sub-grade*. Moving 500 to 600 yards a day with two or three men as your entire force is another forceful reason for using the Baker Maney Method of dirt moving.

Remarkable strength — easy control — quick loading (10 seconds per scraper) and a big cut in your pay-roll are other features about these remarkable dirt movers.

* Road Contractors often use only one or two scrapers for finishing the grade between forms on hard road construction.

Use the coupon below for requesting our big Baker Maney Catalog.

BAKER MANEY
Self Loading Scrapers
"The Original Self Loaders"
Model D, 1¼ Yd. *Model H, ¾ Yd.*

Big Heaping Loads

"The Maneys did not owe me a cent after the first season's use"— writes a Highway Official.

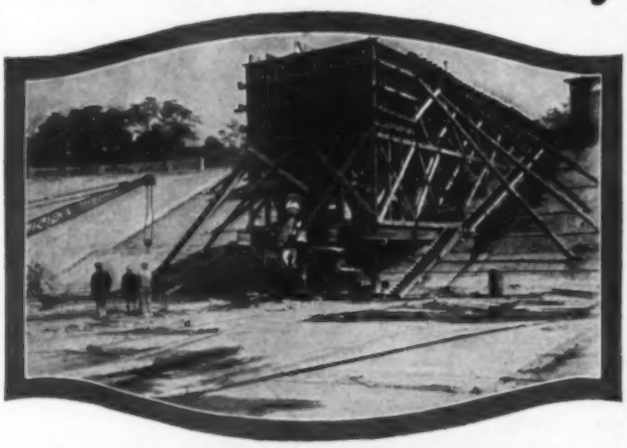
A Western Contractor says: "They are very economical to run. In six months' time our only expense was for a new grease gun, thirty links of chain, two hub caps and two cans of grease."

If you are interested also in Baker One-Man Automatic Rotary Scrapers, check the coupon and get our literature. They're made for use with any tractor.

The Baker Mfg. Co.
568 Stanford Ave., Springfield, Ill.

☐ Baker Maney Scrapers. ☐ Baker Rotary Scrapers.
Please send literature on items checked above, to:
Name.....
Model of Tractor used.
Address.....
8

300 batches a day



The mixing plant was built on the slope of the reservoir, the bins above, and the mixer discharging as shown.

with 21-S Smith at Highland Reservoir Job

Mr. A. V. Purnell got the job of relining the Highland Reservoir at Pittsburgh which had been a trouble maker for years. Consistently high quality concrete was necessary and, to quote from the November, 1927 issue of Construction Methods—"The mixer was a Smith ¾-cu. yd. capacity . . . As many as 300 batches, using a 1½-minute mix, were put through the plant in one 10-hour day . . . Three men operated the plant."

That's speedy, economical production of concrete. It shows clearly the advantages of the wide openings, wide discharge buckets and steep discharge chute on the Smith. For 28 years, Smith Mixers have been proving themselves faster — stronger — more dependable.

The T. L. SMITH COMPANY
1084 32nd St., MILWAUKEE, WIS.
Sales Offices and Service Stations in All Principal Cities

Smith 10-S Tilter is a compact, fast, dependable mixer that is widely used on bridges, streets and reinforced concrete buildings where a capacity of 100 to 150 cu. yds. daily output is desirable.

Write for General Catalog 526—*Now!*

SMITH MIXERS

Now It's Your Move!

"Two men and your machine are now doing 58% more work in a day than twelve men formerly did by hand."

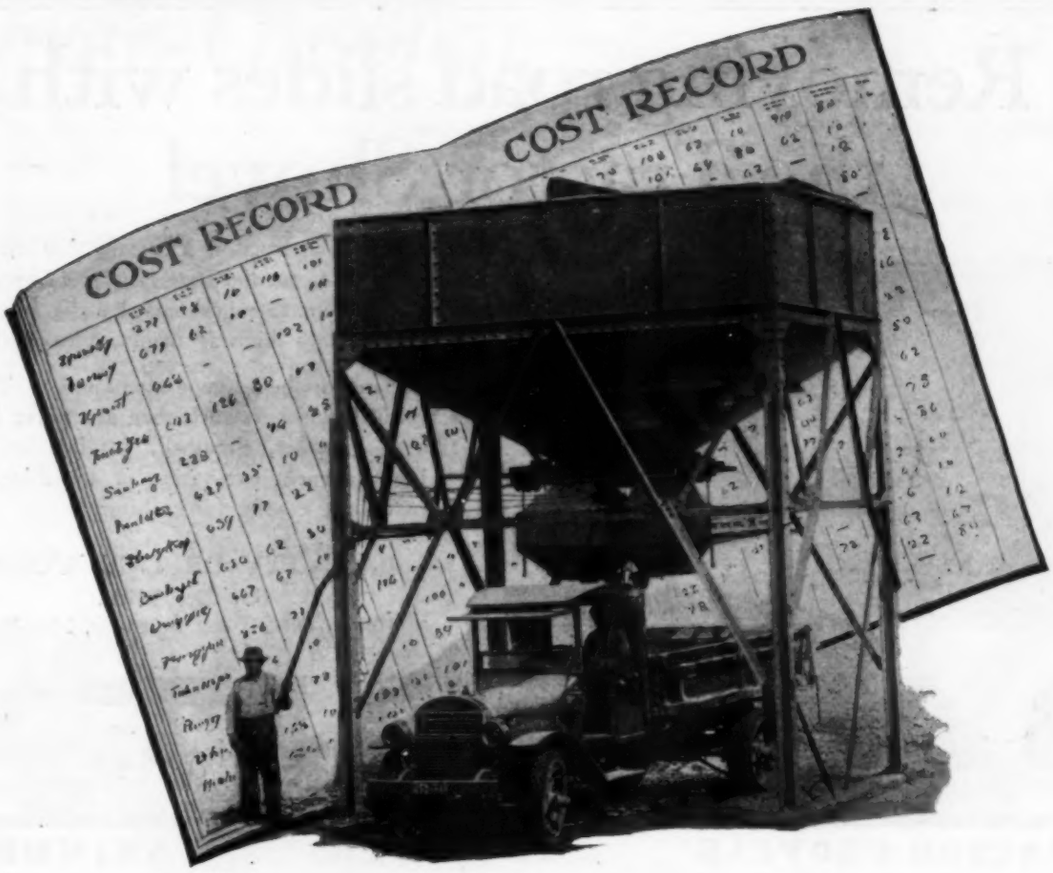
That's a pungent statement, but it's an old story to users of Cleveland C6 Paving Breakers. Invariably they save 50% of the cost and 75% of the time on any job.

Will you be the next to profit from C6 economy? Don't go on paying excess fare on your work.

Get in touch with us. We'll be glad to demonstrate a C6 on any job you select. We'll come at your convenience.

Now it's your move.

The Cleveland Rock Drill Co.
3738 E. 78th St., Cleveland, Ohio



The Proof of the Pudding—

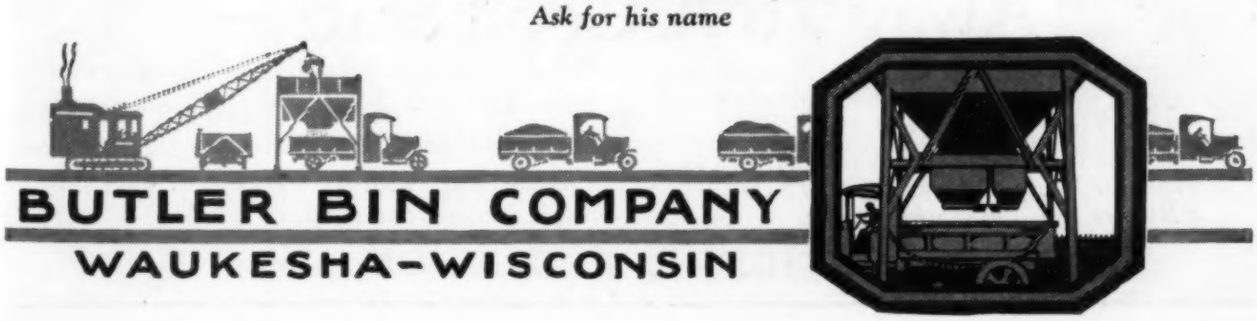
is in the Cost Record.

WHEN the construction season swings into double quick time —then's the time when ability to give quick service means more tons per day and more profit per ton.

Ability to handle materials quickly and accurately is a real sales factor, too, for time is money to the contractor during the summer months. By saving his time you *both* save dollars.

You can reduce your own cost and make a saving in time for your customers by using Butler Bins and Measuring Hoppers.

There's a distributor near you
Ask for his name



BUTLER BIN COMPANY

WAUKESHA-WISCONSIN

Removing road slides with the Tractor Shovel

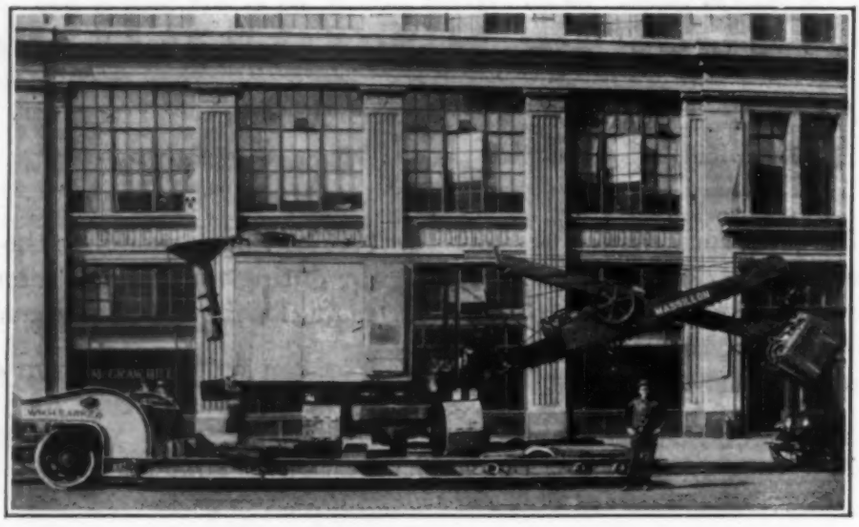
The Lovell Construction Company has two of these machines working for the State Highway Dept. The first one pleased them so much they bought another. It is ideally adapted to highway maintenance work.

Every contractor should own one or more. They can do such a wide range of work they are never idle. Convertible to trencher, clamshell, dragline or shovel. A marvel at basement excavation or trenching. Ask for Bulletin.

BAY CITY DREDGE WORKS
Bay City, Mich.
Eastern Office: 302 Broadway, New York

BAY-CITY

TRACTOR SHOVELS TRENCHERS SKIMMERS



Away To A Good Start—

Enroute from New York to Panama this massive shovel started its long journey on a Rogers Heavy Duty Trailer.

Whether to Panama or any other point, take whatever load you please up to 75 tons—*for a Rogers runs on any highway.*

Whether four, six or eight wheel type we'll build a Rogers Trailer to meet your needs that will save roads, loads, time and money.

Get in touch with us. Dictate a note now while it's on your mind.

ROGERS BROTHERS CORPORATION, Albion, Pa.

Never Obsolete—

The buyer of Blaw-Knox Road Forms will never be embarrassed by his forms being obsolete before the paint is worn off.

Blaw-Knox has not experimented at the expense of the road builder. For nine years Blaw-Knox has adhered to its original design because it is correct.

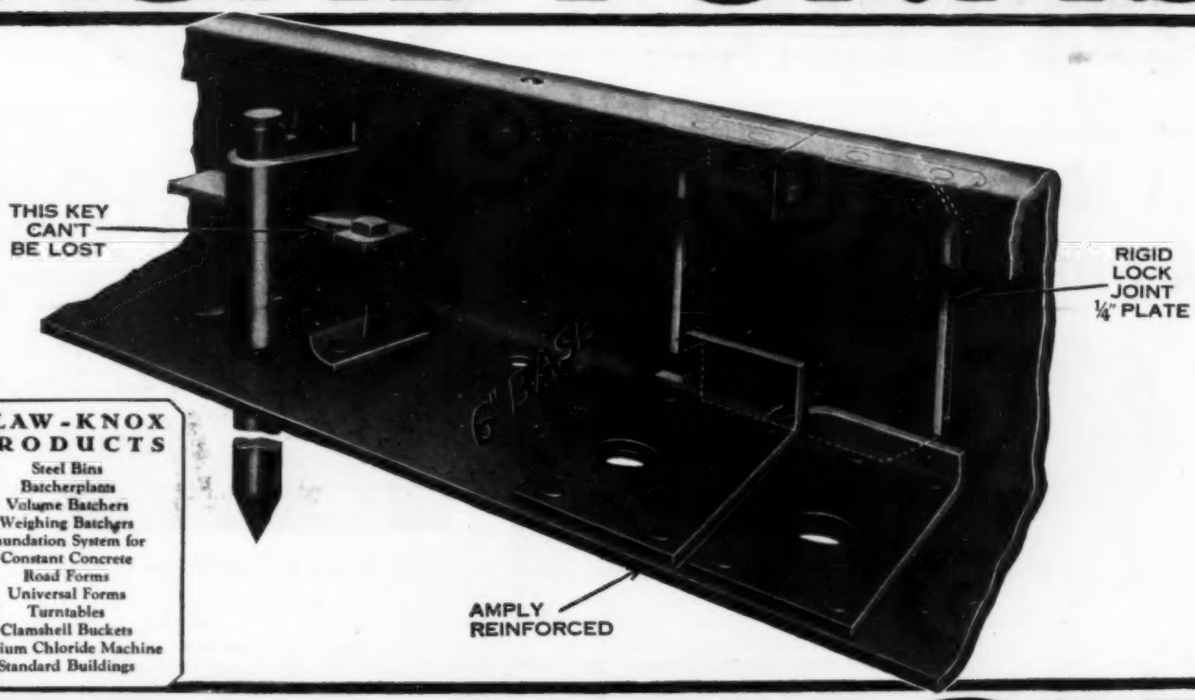
New Blaw-Knox Forms can always be used in combination with old Blaw-Knox Forms—because the principles and elements are the same in both.

Thousands of miles of economically built, smooth concrete roads are tribute to the Blaw-Knox Staking System for support, and the never failing Lock-Joint for the alignment of Blaw-Knox Road Forms.

The original design always remains the same—though it is constantly improved and strengthened to keep pace with the ever changing requirements of road building machinery and construction methods.

This year Blaw-Knox Road Forms are faster to set, stronger, and more reliable than ever. Many years of good service can be expected from them.

ROAD FORMS



BLAW-KNOX PRODUCTS

Steel Bins
Batcherplants
Volume Batchers
Weighing Batchers
Inundation System for Constant Concrete
Road Forms
Universal Forms
Turntables
Clamshell Buckets
Calcium Chloride Machine
Standard Buildings

BLAW-KNOX

BLAW-KNOX COMPANY
686 FARMERS BANK BLDG. : PITTSBURGH, PA.
Offices and Representatives in Principal Cities
Export Division — Milliken Bros.-Blaw Knox Corp. 342 Madison Ave., New York City

To make your unwatering and water supply problems easier!

THIS Morris Portable All-Purpose Pump handles anything from clear water to floating dirt, sand and gravel, delivers 300 to 600 gals. per min., can be used for heads up to 50 ft., and is easy to cart from one job to another. For general water supply, unwatering excavations, sumps, etc., it can't be beat.

Write for literature about this and other sizes of Morris Pumps

MORRIS MACHINE WORKS, Baldwinsville, N.Y.

MORRIS
CENTRIFUGAL PUMPS

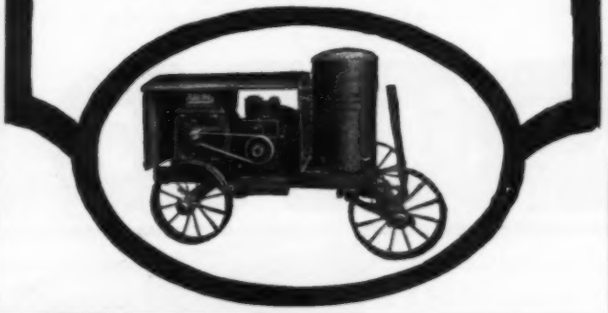
Buhl
AIR COMPRESSORS

Below is illustrated the BUHL Type C Portable Compressor—one of the many different types of this popular line. Moderate in original cost and low in upkeep.

There are six sizes of portable air compressors in the BUHL line to choose from. For operating jack hammers, riveters, clay spades, concrete breakers, etc. The BUHL gives dependable air power at low cost—send for bulletins today.

Sales offices in principal cities

THE BUHL COMPANY
Manufacturers
37 W. Van Buren St., CHICAGO



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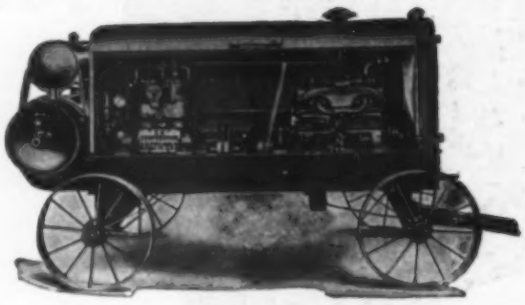

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The Original 2 Yard Tractor Dump

Do You Like Results?

SURE you do. Then let's run one of these Iron Mules into some job you're doing and watch it perform. Shoot it under the bucket or drag line. Watch it scuttle away with two healthy yards in its maw, move it to where you want it, dump it, right itself, wheel around and return. Results! You'll say so too, and through the toughest going you've got, the sort that sticks trucks and kills off mules of the animal variety. Ask your tractor dealer or write us for Iron Mule data and also on Hughes-Keenan steel dump bodies for trucks.

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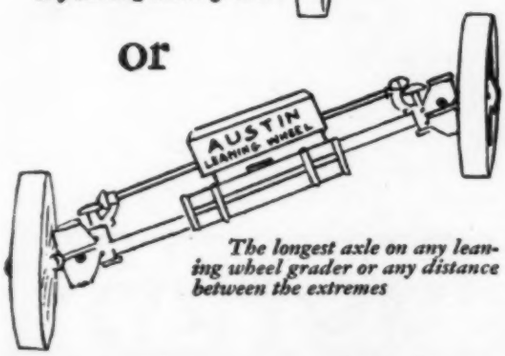
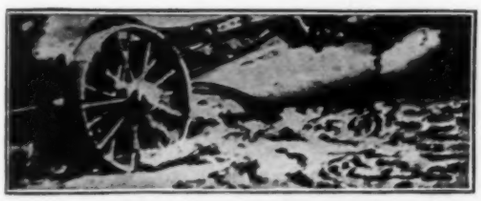
reduced by the Austin Telescopic Axle and Leaning Wheel Grader

The shortest axle on any leaning wheel grader

or



The longest axle on any leaning wheel grader or any distance between the extremes



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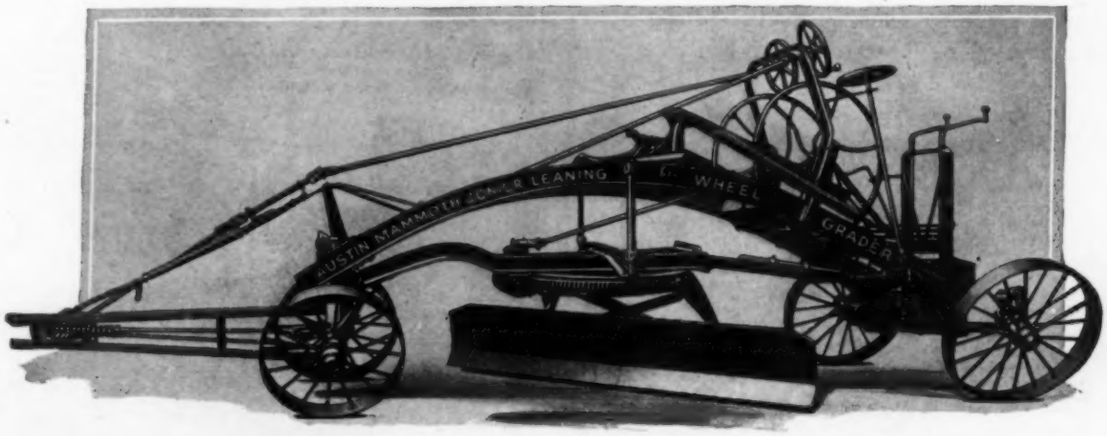

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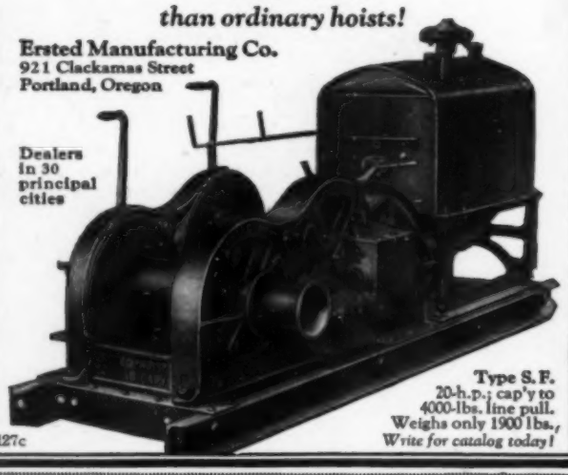

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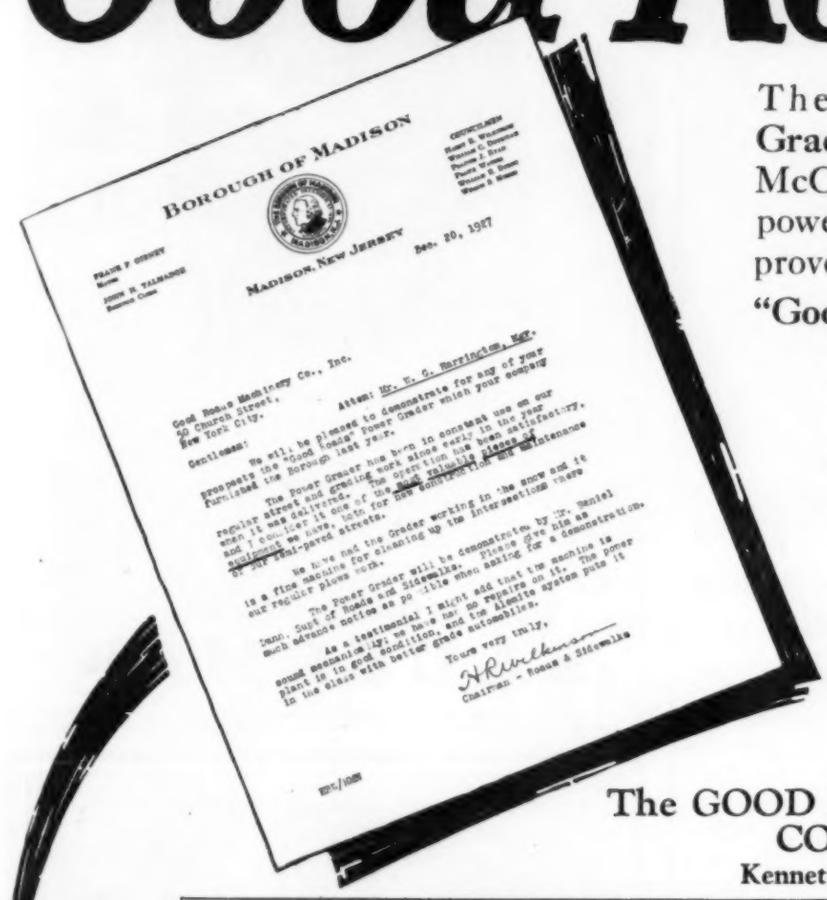

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MADISON, NEW JERSEY

Dec. 20, 1927

Good Roads Machinery Co., Inc.
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Attem: Mr. E. C. Harrington, Mgr.

Gentlemen:

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The Power Grader has been in constant use on our regular street and grading work since early in the year and I consider it one of the most valuable pieces of equipment we have, both for our construction and maintenance of our semi-paved streets.

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The **Good Roads Motor Grader,** furnished with either McCormick-Deering or Cletrac power, needs only a trial to prove that

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Then in winter, the **"Good Roads" Motor Grader,** equipped with a **"Good Roads" Champion Snow Plow** will save many dollars and many traffic delays—and also gives **100%** return.

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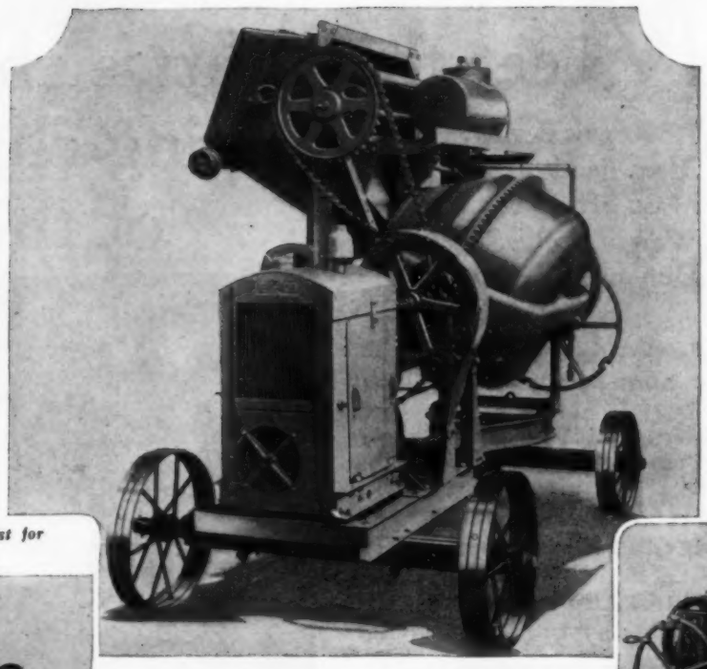
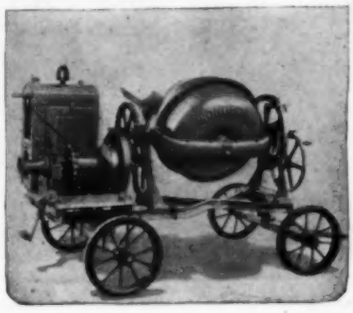


In All Mixer History

WONDER 5-S

Shown with auxiliary hoist for plaster work.



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WONDER

It looks as if 1928 is going to be a mighty good year for construction, but good only for those contractors who are equipped to battle for the business. It is going to be one of those years when you have to be up on your toes and on the job every minute. It is going to be one of those years when to prosper you must have equipment that will enable you to complete the job on time.

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Fast mixing—longer life—a brand new water supply—easy tilting—roller bearings for easy travel, the best power plant on the market—alemite lubrication, and a drum bearing that is guaranteed for the life of the mixer.

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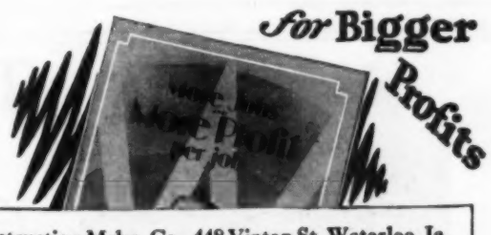

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Waterloo, Iowa

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LOADER MODELS	TRAILERS
☐ 3½-S ☐ 5-S ☐ 7-S	☐ 3-S ☐ 3½-S
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Max. head 50 ft.
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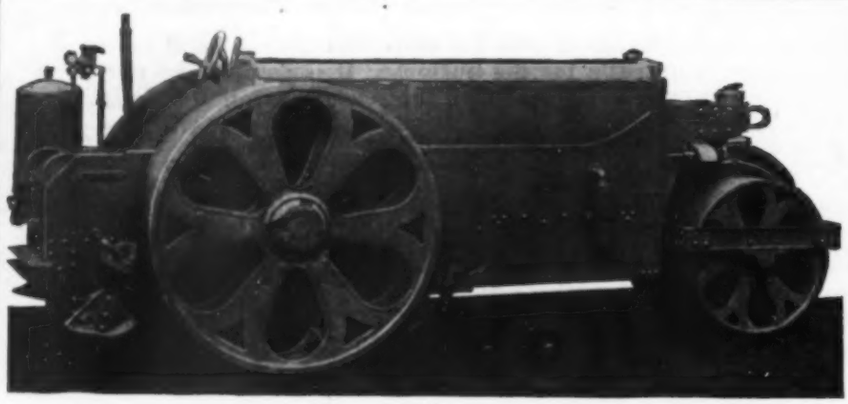

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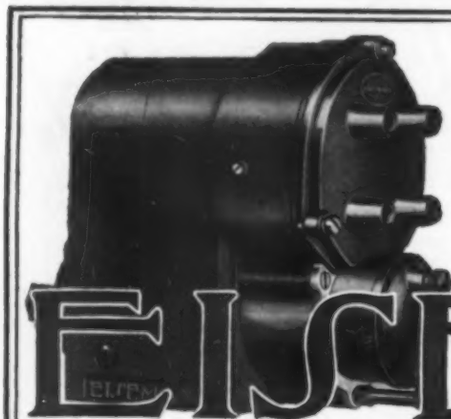

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Faster, More Uniform Work, Greater Profits

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with any mixer selling for $250 more

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Ask any man who owns a BOSS. He will tell you of its speed and durability. He will show you the BOSS Patented Mixing Action that makes the BOSS Mixer the Boss of the field. Send for further details. Note the remarkably low prices made possible by our modern production methods on large quantity basis. Use the coupon below.

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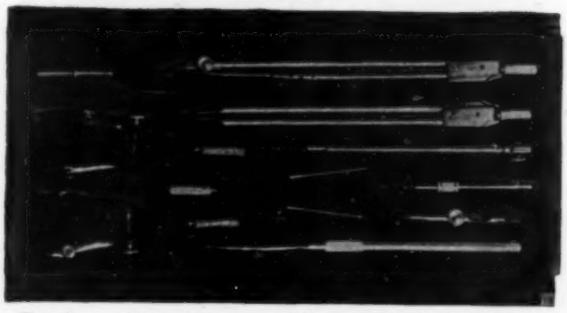

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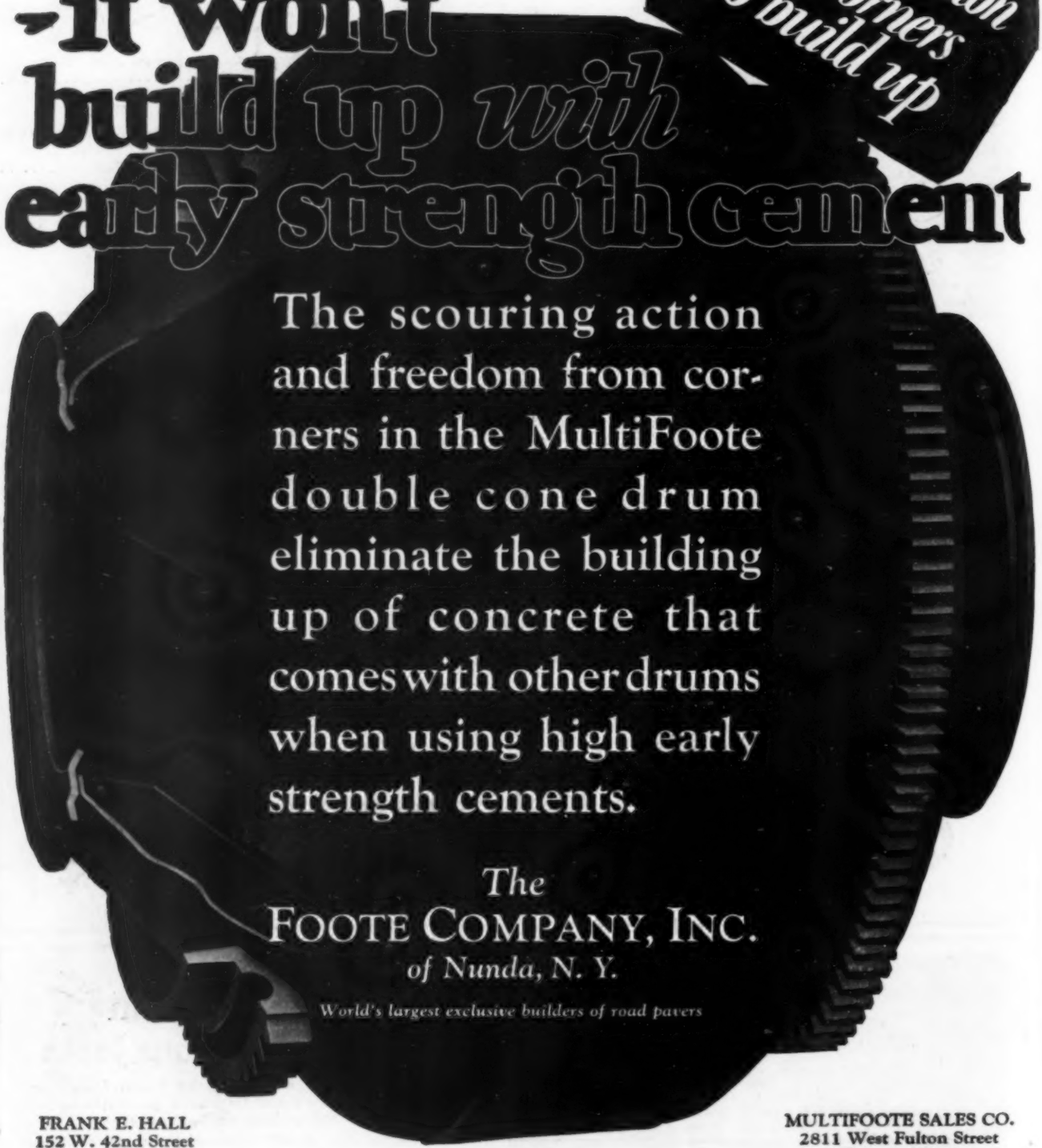
Scouring action
No corners
to build up

-it won't build up with early strength cement



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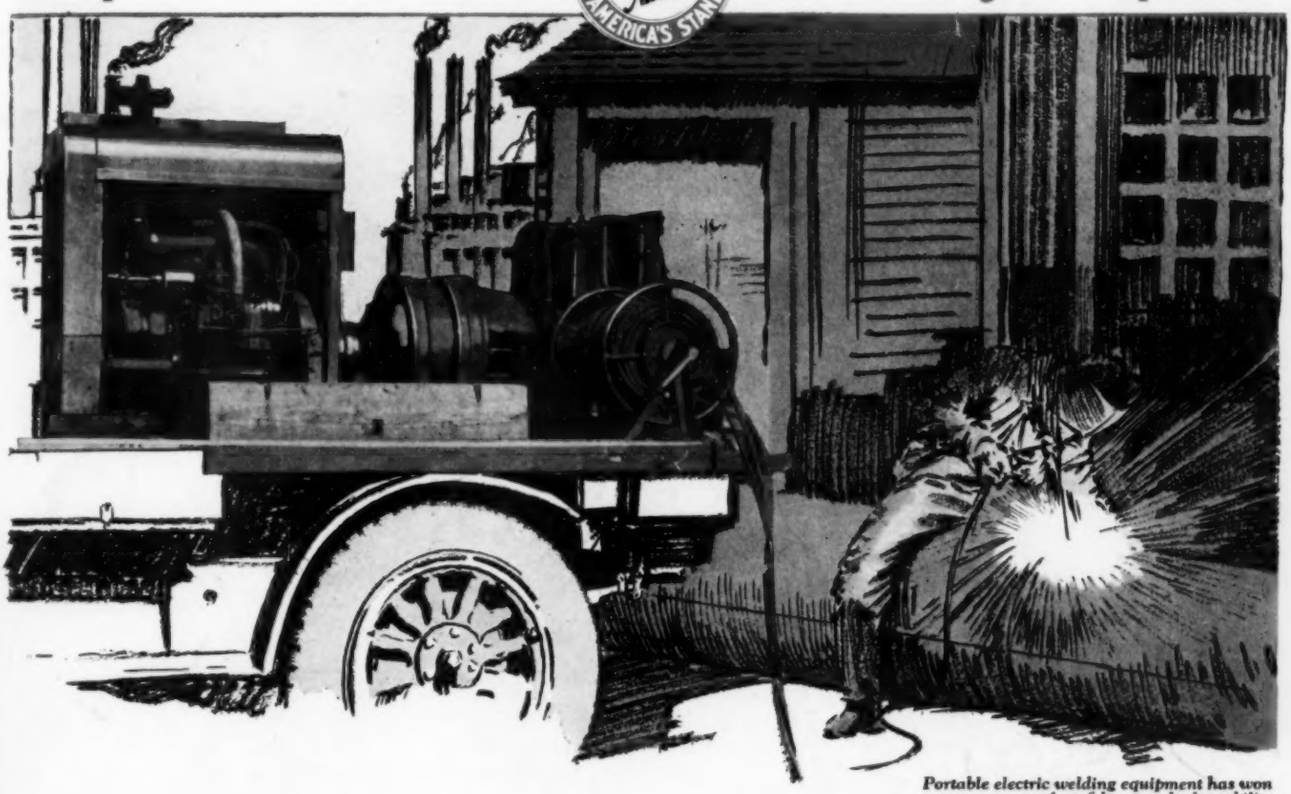

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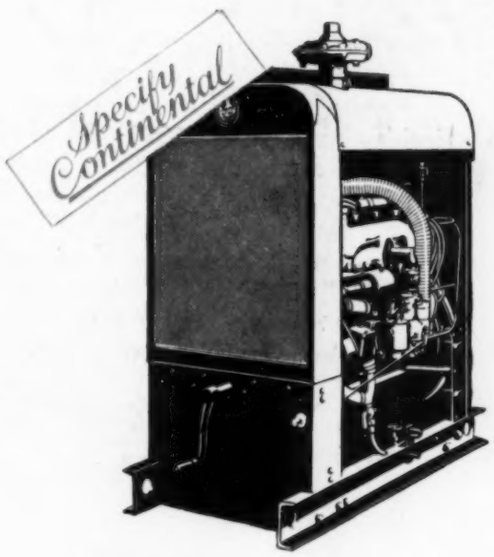

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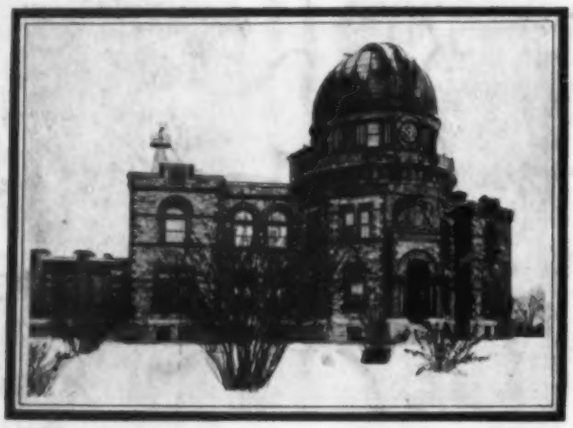

We quote Mr. R. C. Wright, Chief Architect, Department of Public Works, Ottawa, Canada.

"Replying to yours of the 18th instant relative to the waterproofing of the Seismograph Chambers at the Royal Observatory, I wish to say that these underground concrete vaults were built in 1913, but the results from a waterproofing standpoint were quite unsatisfactory and although attempts were made to remedy matters by the use of waterproofing coatings on the inside, the leakage in 1920 was so bad as to render the use of these Chambers almost impossible. Having secured satisfactory results by the use of Super Cement in waterproofing the basement of the Connaught Building here, it was decided to employ similar means on these seismograph chambers.

Early in 1921, therefore, all previous applications were removed from the interior of those chambers and the passages and stairways leading thereto and they were plastered by our regular employees in three coats to a thickness of about one inch with Super Cement mortar. The result of this treatment has been entirely satisfactory; the only sign of dampness being obviously due to condensation of moisture from the warm outer air when this is allowed to enter and strike the cold wall surface of the passages.

I consider this work a severe test of the bonding efficiency of Super Cement and of its effectiveness in producing an absolutely watertight job."

Dragon Super Cement can be used to make concrete waterproof but it's better to use it in the first place and make waterproof concrete.

Used instead of ordinary Portland Cement without change in methods it produced steel-hard, waterproof, oil and acid-proof, smooth-flowing, permanent concrete. *The Dragon Super Cement Book tells How, Why and Where*

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